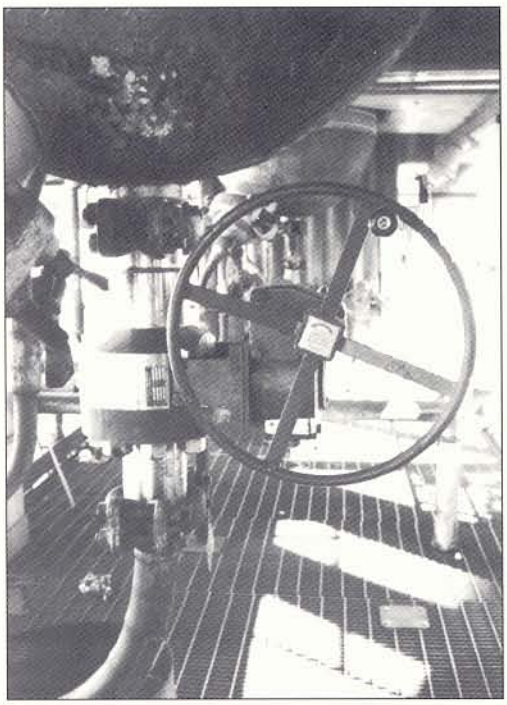
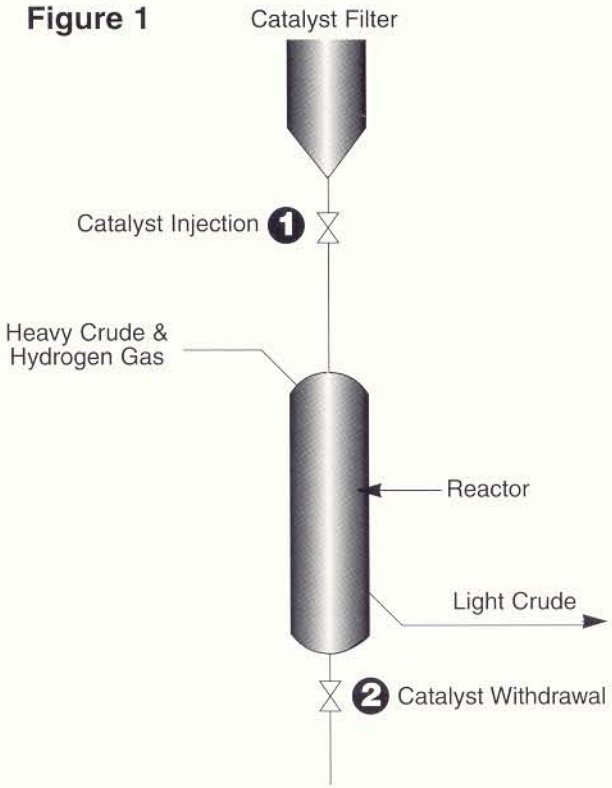
VALVTRON

Application Data



Valvtron valve shown in catalyst withdrawal application in Heavy Oils unit

Figure 1



Heavy Oils Processes

With today's depleting reserves of clean 'light crude,' stricter regulations, and changing market demands, refineries are having to look at processes to change heavy, high-sulfur crude into lighter, higher quality products. Many of these processes are licensed and sold to existing refineries. Some of these are: Hydrocarbon Research, Inc. (HRI), which along with Husky Oil and Texaco Development Corporation developed the 'H-Oil®' process; C-E Lummus, which created the 'LC-Fining' process; Chevron U.S.A. and Veba in Germany, which developed their own heavy oils process. Refineries are being forced to integrate these advanced technologies into their existing systems to meet product demand and EPA requirements. These processes are most suitable for Valvtron products due to the severity of the services. These normally include high pressures, high temperatures, abrasive solids, and occasionally, corrosives. To learn more details on how these processes work and how Valvtron valves fit in, see the reverse side of this page. In addition to the processes mentioned in this data sheet, there are several other technologies such as Fluidized Cat Crackers, Delayed Cokers, and UOP® type systems that also enhance a refinery's production ability.

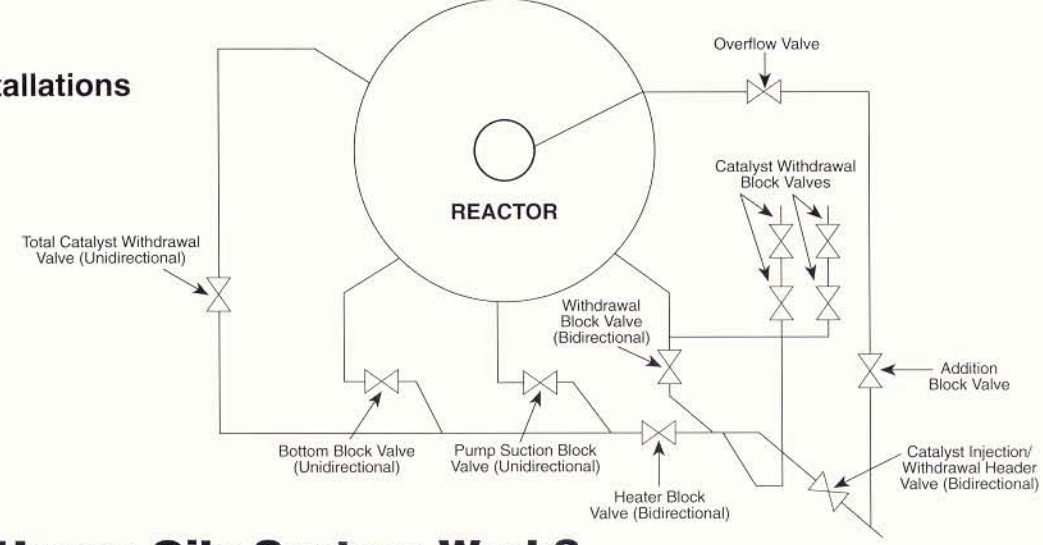
Valvtron Metal-Seated Ball Valves

Chart below lists typical applications, with the schematics (above and on back) identifying valve positions.

Location	Application	Conditions	Valve Size/Design	Body Material/Trim
1	Catalyst Injection	900°F @ 3000 psi	2 and 3-inch 2500 lb./V1	347SS/Trim 60
2	Catalyst Withdrawal	900°F @ 3000 psi	2 and 3-inch 2500 lb./V1	347SS/Trim 60

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

Figure 2
Typical Valvtron Installations



How Does A Heavy Oils System Work?

As discussed on the front of this data sheet, refineries worldwide must improve efficiency to survive. Utilizing the technology of these modern processes with the benefits of Valvtron valves, refineries can achieve greater efficiencies.

Figure 1 shows Valvtron applications for Valvtron valves in catalyst injection and withdrawal in a heavy oils unit. Figure 2 shows where typical Valvtron valve applications appear. Two commonly known licensed systems are H-Oil and LC-Fining.

H-Oil

This patented system recycles vacuum residue feed bottoms to create distillate materials. A constant flow of hydrogen gas, catalyst, and liquid allows refiners to keep units on-line. This eliminates the need to shut down and remove used catalyst.

Valvtron has provided valves for H-Oil Pilot Plants since 1985. These valves are used to handle catalyst with a hydrogen carrier. A leakage rate of less than .15 SCFH was met by Valvtron, based on pressurized hydrogen gas (18 times lighter than air).

LC-Fining

Similar to the H-Oil process, this system also allows continual catalyst addition and withdrawal without bringing down the unit to change out catalyst. Heavy feedstocks are broken down into synthetic crudes and distillable light products.

Why Other Valves Don't Work

Pressure, temperature, abrasion, and corrosion are common operational parameters. When thermal expansion, particulate displacement, purging, etc. are added, many valves fail. Many valves work until solids are introduced. Gates and globes have no way to displace particulates. This can cause crushing action that will damage seating areas. Other designs allow solids to pack behind the seats causing the valve to lockup.

Why Use Valvtron Valves?

Catalyst injection and withdrawal valves are considered among the most critical applications in any heavy oils unit. Service is hydrogen-carrying abrasive dry catalyst at both high pressure and high temperature. Material selection as well as stringent leakage test requirements are the keys to longevity. Valvtron metal-seated valves are designed and manufactured on a 'per order' basis with careful consideration given to service criteria and service life.

When other manufacturers claim they will work in these severe service conditions, customers should ask, For how long? Valvtron valves have field-proven service life. Just give Valvtron a call to find out how Valvtron valves can make your operations a success.

Valvtron

9700 West Gulf Bank, Houston, Texas 77040
Phone: 713-466-1176

www.tycoflowcontrol.com