

Water Alternating Gas (WAG) in Enhanced Oil Recovery

Water Alternating Gas (WAG) is a process used in Enhanced Oil Recovery (EOR) to increase the amount of oil that can be extracted from a reservoir. WAG involves injecting a mixture of water and gas (carbon dioxide) into the reservoir in a cyclic manner. The water helps to maintain pressure and sweep the oil towards the production well, while the gas acts as a mobility control agent and reduces the viscosity of the oil, making it easier to extract. By alternating between water and gas, WAG allows for the efficient displacement of oil and the maintenance of pressure, leading to increased oil production.

Hydroplex is used in WAG systems because it offers

Corrosion resistance: The stainless steel body of the valve is resistant to corrosion from CO₂ and water, making it suitable for use in the harsh EOR environment.

Explosive decompression prevention: The PC-cured Buna N elastomer seals prevent explosive decompression issues with seals.

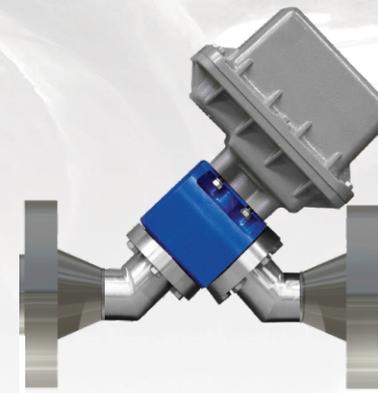
Cavitation and velocity protection: The Stellite wear sleeve helps to reduce mechanical erosion caused by cavitation during the water injection phase, ensuring the longevity of the valve.

Modularity: The modular design of the valve body allows for the easy replacement of the downstream hub, extending the service life of the valve to match the life of the field.

Valve Sizing Note

The injection valve in a WAG system needs to be sized for both the gas and liquid phases of the process. This is because the requirements for each phase are different and the valve needs to be able to handle both effectively. For example, during the gas phase, the valve needs to be able to handle high flow rates and pressures to efficiently inject the gas into the reservoir. During the liquid phase, the valve needs to be able to handle high liquid volumes with minimal pressure drop to ensure effective water sweep of the oil. It is important to choose a valve trim size that satisfies both requirements, as this will ensure reliable and efficient operation of the WAG system. The valve trim size is selected based on the flow rate, pressure, and fluid characteristics of the WAG mixture, as well as the specific requirements of the injection system.

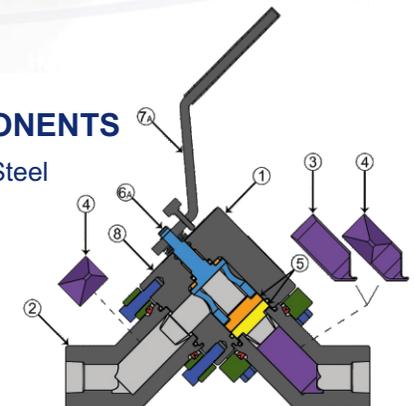
HYDROPLEX HCY



Hydroplex HCY
with Direct
Mount Actuator

MAJOR COMPONENTS

1. Body, Stainless Steel
2. Hub Assembly
3. Wear sleeve
4. Fixed Bean
5. Control Discs
6. Stem assembly
7. Adjusting Handle
8. Calibration Plate



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