

### SEP-iSYS™ CYCLONIC SAND REMOVAL SYSTEM (CSRS)

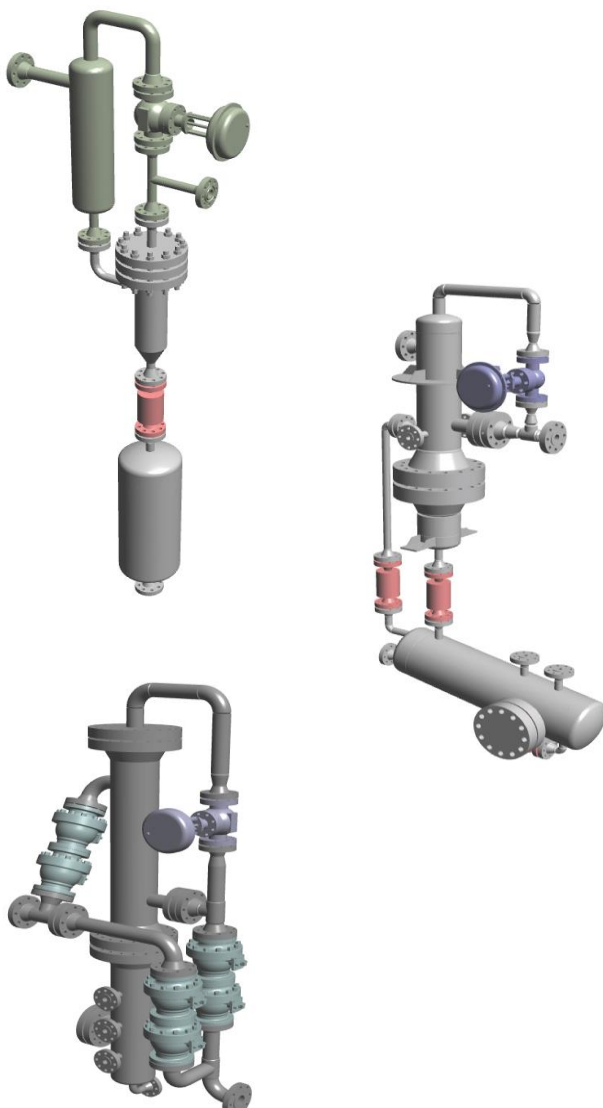
The Sep-iSYS™ Cyclonic Sand Removal System (CSRS) is a compact system with a novel configuration that enables very efficient sand removal at highly transient multiphase flow conditions. The system is jointly developed and owned with PETRONAS.

#### ABOUT THE SYSTEM

The system consists of a flow stabilizer device located upstream of a cyclonic desander to dampen transient multiphase flow conditions and perform coarse gas liquid separation, ensuring stable predominant liquid flow into the cyclone. A differential pressure control valve is located on the gas outlet of the flow stabilizer to maintain a fixed differential pressure ensuring optimum performance of the system even under severe flow and pressure surges including during high turndown. A sand boot downstream of the desander is provided to accumulate removed sand. Where required, a sand accumulator can be provided for online removal of the sand and online sand washing facility.

#### MAIN FEATURES AND BENEFITS

- Consistently high sand removal efficiency down to 20µm irrespective of flowing conditions and flow regime
- Stabilizer device provides ability to handle slug flow and all other transient flow conditions without disrupting the performance of cyclone
- High turndown capacity
- Automatic and online turndown capability (No operator intervention or system shutdown required)
- Low and fixed pressure drop (<1 bar)
- Compact and light weight
- Modular system allows easy retrofit for existing cyclonic desanders
- High reliability and availability

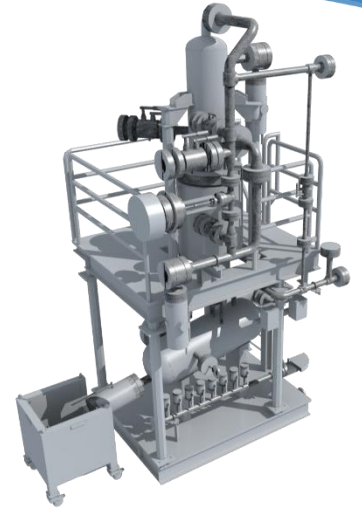


## POTENTIAL INSTALLATION LOCATIONS

The Sep-iSYS™ Cyclonic Sand Removal System (CSRS) can be installed on various locations;

- For single well on wellhead platform : Upstream or downstream of choke valve
- For multiple wells on wellhead platform : Downstream of choke valves
- For multiple well on processing facility : Upstream of production separator

For facilities that already have a conventional desander that is unable to perform efficiently due to transient flow and high turndown, the Sep-iSYS™ Cyclonic Sand Removal System (CSRS) can be retrofitted to the system by installing a control valve and the stabilizer device.



## TRACK RECORD



Sep-iSYS™ Cyclonic Sand Removal System for PETRONAS FLNG-2

Client:  
JGC Corporation

Operating Capacity:  
Max Liquids : 15,000 BLPD  
Max Gas : 200 MMscfd  
Design Pressure : 125 barg

Package Dimensions (3-trains):  
3.0m (L) x 12.0m (W) x 6.0m (H)

Package Dry Weight:  
35 Tons



Sep-iSYS™ Cyclonic Sand Removal System for Baronia Facility

Client:  
PETRONAS Carigali SK-Oil

Operating Capacity:  
Max Liquids : 3,000 BLPD  
Max Gas : 3.6 MMscfd  
Design Pressure : 131 barg

Package Dimensions:  
1.2m (L) x 2.0m (W) x 4.8m (H)

Package Dry Weight:  
5 Tons



Sep-iSYS™ Cyclonic Sand Removal System for Bokor Facility

Client:  
PETRONAS Carigali SK-Oil

Operating Capacity:  
Max Liquids : 20,000 BLPD  
Max Gas : 10.0 MMscfd  
Design Pressure : 76 barg

Package Dimensions:  
4.5m (L) x 4.5m (W) x 6.0m (H)

Package Dry Weight:  
18 Tons