Safer catalyst change-outs. Shorter shutdowns.

INVOCAT’s goal is to complete catalyst change-outs on suitable fixed-bed reactors with the crew working outside the vessel.

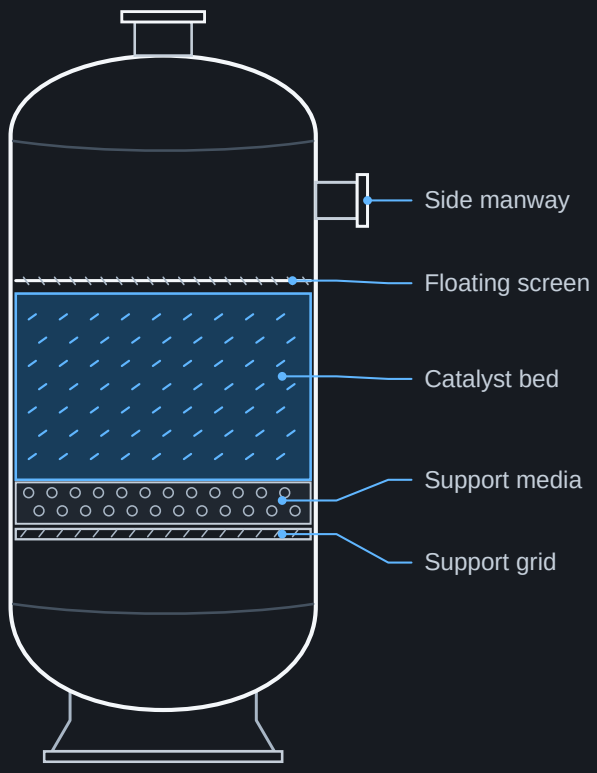
Where crews enter

Even after a gravity dump, spent catalyst can remain on the bed support. To clear it, a crew member may have to enter a vessel held under an inert atmosphere. A tray access panel or floating screen can also stand between the crew and the next bed.

When the change-out sets the restart date

Finishing earlier can give the facility production time back. That depends on completing the whole job, including the internal mechanical work, while protecting the catalyst and meeting the specified loading profile.

Fixed-bed reactor

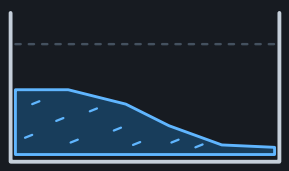


Illustrative arrangement



Planned equipment capabilities

Vessel access and the arrangement of the internals determine which tasks a crew could complete remotely.



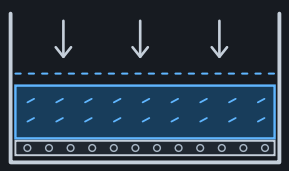
Unload spent catalyst

Remove a full bed or unload to a specified depth. Clear residual material after gravity dumping and break up coked or fused catalyst where required.



Handle reactor internals

Remove, orient and reinstall tray sections and access panels. Replace tray fasteners, including J-bolts, install or remove wedge clips, and tack-weld nuts where specified. Remove and reinstall floating screens and fit tray and rope gaskets.



Load catalyst and support media

Place each layer of support media and fresh catalyst in the sequence the facility specifies. Check the bed profile and correct deviations as loading proceeds.

Discuss Investment, Partnership, or Services

Based in the Houston area, INVOCAT plans to serve projects internationally. We welcome inquiries from investors, contractors and facility operators about equipment, field support and licensing.