

# Fluid Catalytic Cracking (FCC)

Fluid Catalytic Cracking (FCC) is an established conversion technology that provides feedstock and product flexibility for refiners. Technip Energies is a world leader in the application of FCC technology to refinery operations.



**Our success is due to advances in FCC technology made possible through our longstanding alliance between Technip Energies, Axens, IFPEN and Total.** To date, we have licensed over 60 grassroots units and executed more than 250 revamps.

The alliance offers state-of-the-art advancements through:

- A continually-developing database on processing a range of feeds
- World-class research and development capabilities of IFPEN with unparalleled test facilities
- Direct operating experience obtained by means of collaboration with Total at its worldwide FCC facilities
- Comprehensive engineering design studies, pilot plant testing, test programs on commercial units, cold-flow modelling and the use of up-to-date refinery computer optimization

Technip Energies has provided technological advances to the industry in residue processing, allowing for more flexibility in product slate to produce transportation fuels and petrochemicals.

The Technip Energies/Axens R2R cat cracker is designed for atmospheric residue feeds containing up to 8% Concarbon. This unit produces high yields of gasoline, diesel, and light olefins.



## Technip Energies FCC Process

The proprietary process offers refiners these features:

- Advanced feed injection system
- Innovative riser termination
- Highly efficient packed-stripper design
- Reactor vapor quench
- Mix zone temperature control
- Efficient catalyst regeneration system
- 2-stage regeneration for resid feeds
- Proven catalyst cooler design
- Reliable, low-maintenance cold wall carbon steel design
- Proven mechanical design for safe operation with minimum thermal stresses
- Low-maintenance combustion air rings

These features give superior operating performance and higher profitability by providing:

- Wide range of feedstock processing flexibility – residue to highly hydro-treated vacuum gas oil
- Ease of transient operations, such as start-up and shutdown
- Stable catalyst circulation
- High liquid yields
- Low coke yield
- High tolerance to metals on catalyst
- Longer run-lengths
- Operating flexibility
- Product flexibility from diesel to gasoline or propylene modes
- Efficient use of plot space
- Low capital cost

Our ongoing research and development program and continuing search for new and complementary technologies ensures that our licensees have state-of-the-art cracking technology capable of handling the widest range of feeds for maximum profitability.

Hokkaido, Japan. This R2R Resid Cracker is designed for residue feeds up to 7.3wt% Concarbon at 32,000 BPD. (Photo courtesy Axens & Idemitsu)

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