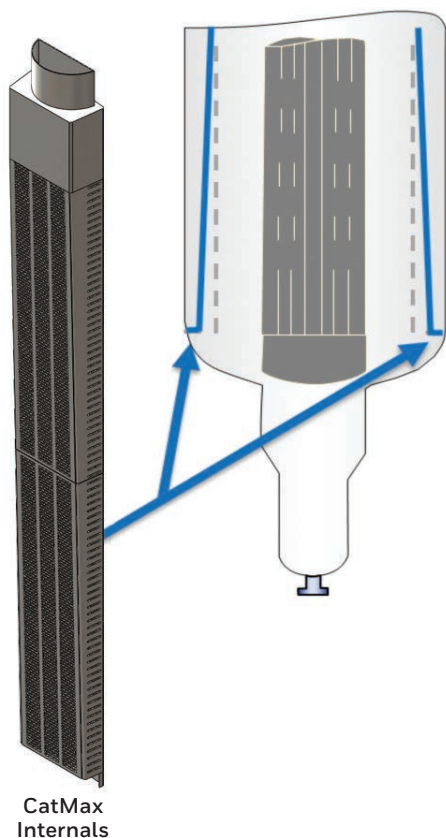


UOP CATMAX™ REACTOR INTERNALS

UOP CatMax Reactor Internals, the latest design for CCR Platforming™ units, delivers up to 10x greater mechanical strength compared to conventional D-shaped scallops. With CatMax, existing units can achieve up to 10% greater catalyst volume, enabling greater yield and selectivity. New units can achieve a reduction in reactor CapEx, allowing the same catalyst volume in a shorter vessel tangent length.

BACKGROUND

The CatMax Reactor Internals are tapered high strength scallops that effectively distribute the inlet vapor across the catalyst bed. This allows a more constant gas velocity down through the scallop and a more even distribution across the axial portion of the catalyst bed. For revamp units, this tapered design allows greater catalyst volume into the existing reactor to enable greater yield, lower operating reactor temperature, or enable higher unit throughput.



FEATURES AND BENEFITS

- Up to 10x greater mechanical strength than D-shaped scallops (enhanced unit reliability)
- More efficient utilization of process gas transfer resulting in greater yield and selectivity
- Enhanced accessibility for inspection and cleaning
- Enhanced bottom design prevents base deformation
- Shorter maintenance turnarounds

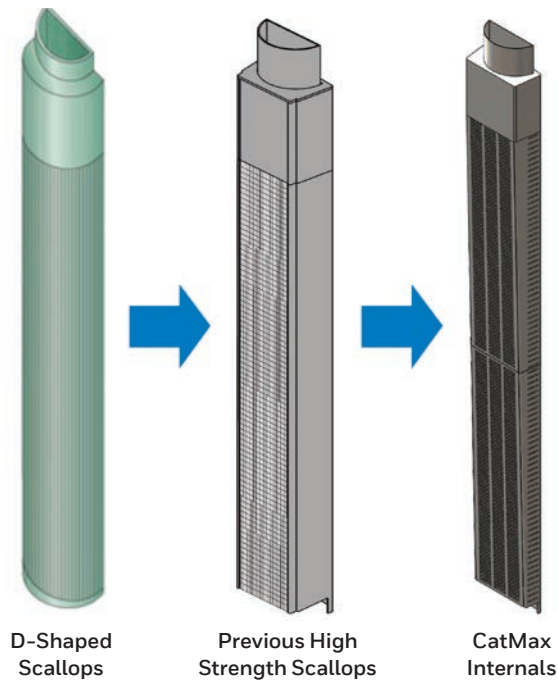
Benefits for New Units

- Up to 10% reduction reactor stack height (tangent length)
- Reduction in transfer pipe length by approximately 6%
- Foundation savings due to lower reactor height

Benefits for Existing Units

- Up to 10% greater active catalyst volume resulting in greater reforming yield
- Operation at a lower inlet temperature
- Continued utilization of seal catalyst as active volume

UOP PLATFORMING TECHNOLOGY EVOLUTION



CATMAX EXPERIENCE

CAPACITY	STATUS	YEAR
95,600	Operating	2019
95,515	Operating	2019
53,100	Design & Construction	2017
40,000	Design & Construction	2017
60,100	Design & Construction	2017
70,400	Design & Construction	2017
50,000	Design & Construction	2018
95,600	Design & Construction	2018
95,515	Design & Construction	2018
62,500	Design & Construction	2018
39,800	Design & Construction	2018
52,000	Design & Construction	2018
40,500	Design & Construction	2018
76,900	Design & Construction	2018
74,500	Design & Construction	2018
74,541	Design & Construction	2018
60,000	Design & Construction	2019
82,000	Design & Construction	2019
15,600	Design & Construction	2019
53,100	Design & Construction	2019

For more information

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UOP KEY MECHANICAL EQUIPMENT ADVANTAGES

- Supply focused on process critical equipment ensuring performance and process guarantees are met
- UOP Engineering and shop inspection services included in the equipment order
- High quality, mechanically warranted equipment
- Customer receives a dedicated UOP Project Manager as the single point of contact for all equipment related communication
- Constant communication with UOP's Global Technical Services team in pursuit of product and service enhancements
- Very prestigious, trusted, and highly-capable group of equipment suppliers who underwent rigorous and extensive qualification on each product they supply

