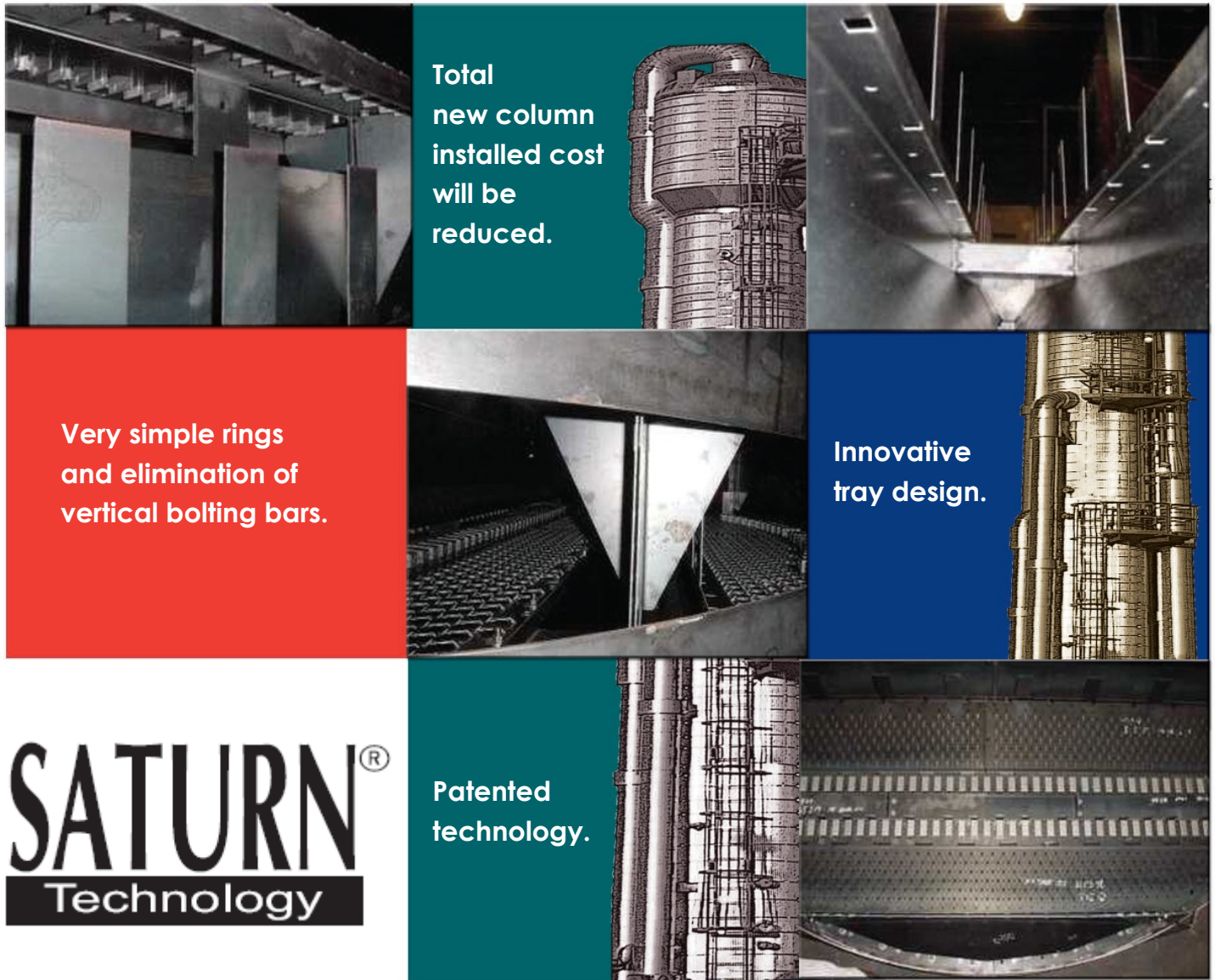


Optimized Design Techniques for New Columns



The patented SATURN technology from Koch-Glitsch can be used to reduce the total installed cost of new distillation columns, especially those containing multi-pass crossflow trays. The combination of simple tower attachments and an innovative tray design equates to a lower total installed cost.

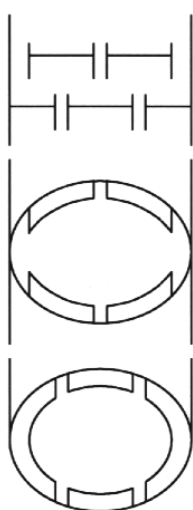
SATURN® TECHNOLOGY = \$AVINGS\$

The patented SATURN technology from Koch-Glitsch can be used to reduce the total installed cost of new distillation columns, especially when those columns will contain multi-pass crossflow trays. The traditional method for designing new towers was to develop the layout of the trays and then design the required support structure. At Koch-Glitsch, we start with the simplest support structure and then use an innovative tray mechanical design to capture the installation benefits of dualflow trays.

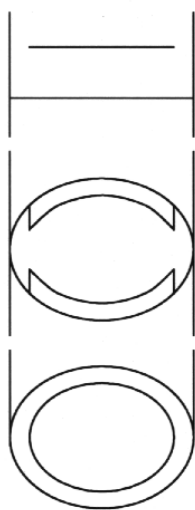
Until now, the sole disadvantage of the use of crossflow trays in new towers has been the extra complexity of the tray support structure/grid inside the towers. With conventional crossflow tray designs, horizontal ring segments support the tray decks, and vertical bolting bars support the tray downcomers. The use of this

support structure requires time and money because all of the ring and bar pieces need to be engineered, fabricated, installed and welded.

Why do this?



When you can do THIS?



SATURN technology brings together:

1. The high efficiency, high capacity, low cost, and reliability of crossflow trays
2. The simple rings of dualflow trays

The net result is that SATURN technology provides the buyers of new distillation columns with the ultimate low-cost installed solution.

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SATURN technology is protected by various patents worldwide.

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