

# MAXIMIZE YOUR PLANT PERFORMANCE THROUGH STATE-OF-THE-ART PROCESS EQUIPMENT, RETROFITS AND ENVIRONMENTAL SOLUTIONS.

UOP Process Equipment



**Honeywell**  
**Uop**

# FOR AN ENVIRONMENTAL-FRIENDLY AND PROFITABLE OPERATION

Never before have petrochemical producers faced the challenges caused by volatility in crude oil prices and limited advantaged feedstock, while the refining and gas industries must be increasingly vigilant of dramatic changes in global supply conditions. However, some worldwide trends have not changed, such as the need to optimize the plant and to cut the carbon footprint by reducing the amount of energy they need to drive the plant. By decreasing water, heat, and energy consumption, plant optimization will also generate operating cost savings and capital reduction for units. New process equipment and retrofits will be required that can help achieve higher operational efficiencies without any major changes to the plant. Ideally, these technologies should be both cost-effective and commercially proven.



# TRANSFORMATION STARTS TODAY

Honeywell UOP Process Equipment provides state-of-the-art equipment and retrofit solutions that allow customers to focus on proactive maintenance strategies and process optimizations leading to reduction in total cost of ownership<sup>1,4</sup>. UOP offers flexible, future-forward, and connected technologies addressing energy challenges for today and tomorrow. From reducing energy consumption to improving efficiency and environmental footprint<sup>1</sup>, Honeywell can help you on your journey.

## INDUSTRY SOLUTIONS

UOP Process Equipment can support the entire lifecycle of your plant with our cutting-edge products, providing solutions that minimize equipment size and installed costs on grassroots units and maximize production and reduce energy requirements via retrofits of existing assets<sup>1</sup>.

### Tailored Solutions for Your Heat Transfer and Distillation Problems

UOP distillation trays and heat transfer tubes are tailor designed to maximize column and heat exchanger performance within the unique needs and operating conditions for each process unit. For over 50 years, UOP has been a leading supplier of high-performance heat transfer and separation equipment for the petrochemical, gas and refining industries, providing high performance trays, packing and tubes in over 3,000 process units. With this substantial commercial experience, UOP is positioned to offer equipment that not only have outstanding performance but are backed by broad and documented field experience.

### ECMD™, ECMD+™ And PFMD Trays Deliver Up To 65% More Capacity Than Conventional Trays<sup>2</sup>

Honeywell offers a wide array of high performance distillation internals to meet the demands placed on distillation columns today. ECMD & ECMD+ Trays offer exceptional capacity and can provide up to 65% increase in production rate over conventional trays<sup>2</sup>. The PFMD trays can help maximize both efficiency and capacity at lower pressure services. The capacity and technical features of the trays can be applied to provide several different solutions including:

- Maximize Production<sup>2</sup>
- Reduce Energy Consumption<sup>3</sup>
- Minimize Pressure Drop<sup>1</sup>
- Extended Run Times<sup>4</sup>
- Reuse Existing Columns<sup>5</sup>
- Increased Product Purities<sup>6</sup>
- Increase Product Recoveries
- Divided Wall

### High Flux™ and High Cond™ Tubing for Improved Heat Integration and Lower Production Costs

Honeywell offers high performance tubes for both boiling (High Flux) and condensing (High Cond) services. A wide array of enhancements can be added to the ID or OD of the tubes to maximize performance within the operating constraints of the heat exchanger. The improved heat transfer of the tubes can be applied to provide several different solutions including:

- Maximize Duty While Maintaining Existing Footprint<sup>2,3</sup>
- Operate at Lower LMTD<sup>2,7</sup>
- Change To More Economical Heating Medium<sup>7</sup>
- Eliminate Cooling Water Limitations<sup>8</sup>
- Minimize Energy Consumption<sup>1,3,8</sup>
- Retain Ancillary Equipment (Compressors, Pumps)<sup>2</sup>
- Improve Heat Integration<sup>9</sup>

By improving heat integration, generating energy savings and lowering the production costs, the wide array of high-performance UOP tubes deliver substantial value to our customers.



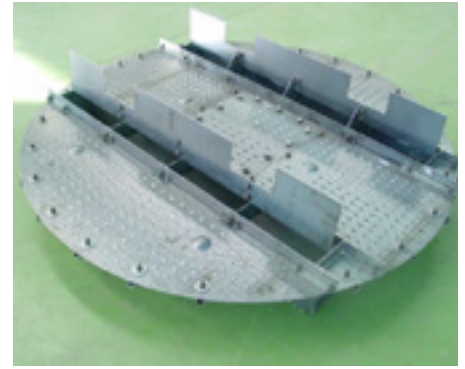
# WHY HONEYWELL UOP?

Over the last century, Honeywell UOP's engineers and chemists have shaped the refining, petrochemical, and gas processing industries by turning laboratory science into industrial reality. UOP continues to innovate to create flexible, future-forward and sustainable solutions that address the challenges of our everchanging world. We're striving to create cleaner fuels by developing processes that reduce emissions and produce renewable fuel sources. Our Honeywell Green Diesel™ and Honeywell Green Jet Fuel™ require no changes to engines or fuel infrastructure and reduce greenhouse gas emissions by more than two-thirds.

Our process technologies, equipment, and lifecycle solutions are helping customers generate the most value from every drop of oil, every cubic foot of natural gas, and every ton of coal. And through connected software, UOP is helping customers become more efficient and profitable through digital tools that ensure plants are running at the peak of their capability.

## Global Presence

Part of Honeywell's Performance Materials and Technologies business group, UOP has more than 3,000 active patents, a global presence, and a century of experience using breakthrough chemistry and engineering to power global growth. UOP provides reliable technical service and support, with expertise in plant operations, asset management, customized training, strategic and tactical support, troubleshooting, and engineering services. Our commitment to innovation is based on an extensive network of laboratories and pilot plant facilities. UOP's worldwide sales, support and manufacturing facilities includes locations in the Americas, Asia, Europe and the Middle East.



### 1. ID Coated High Flux Tubing

- Carbon Steel, Stainless Steel, Copper-Nickel
- Two to five times the performance of bare tubing

### 2. OD Coated High Flux Tubing

- Carbon Steel
- Two to three times the performance of bare tubing

### 3. High Cond Tubing

- Carbon Steel, Sea-Cure™
- Twice the performance of bare tubing
- 30% higher performance than low fin tubing

### 4. High Cond Tubing

- Admiralty Brass, Copper-Nickel
- Twice the performance of bare tubing
- 30% higher performance than low fin tubing



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6. Mohamed S. M. Shakur, Peter, J. McGuire, Larry G. Bayer, "Converting UTP's Chemical-Grade C3 Splitter to Polymer-Grade Using UOP MD Trays at 10-Inch Spacings" Spring National Meeting AIChE 1997, Ethylene Producers Conference, March 11, 1997
7. High Flux Tubing Applications in the Petrochemical & Refining Industries (Dec.1999)
8. Enhanced Heat Transfer Technology Proves Beneficial In Cooling Water Driven Condensers (March 2011)
9. Design and Operating Experience with Vapor Recompression Systems having High Performance Equipment (March 1985)

### **For More Information**

For more information, please contact your UOP representative or visit us online at <https://uop.honeywell.com>

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