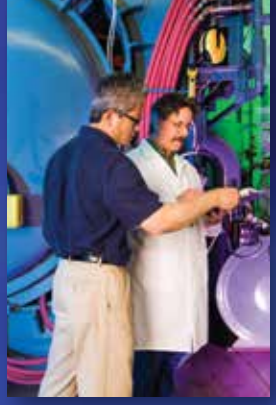
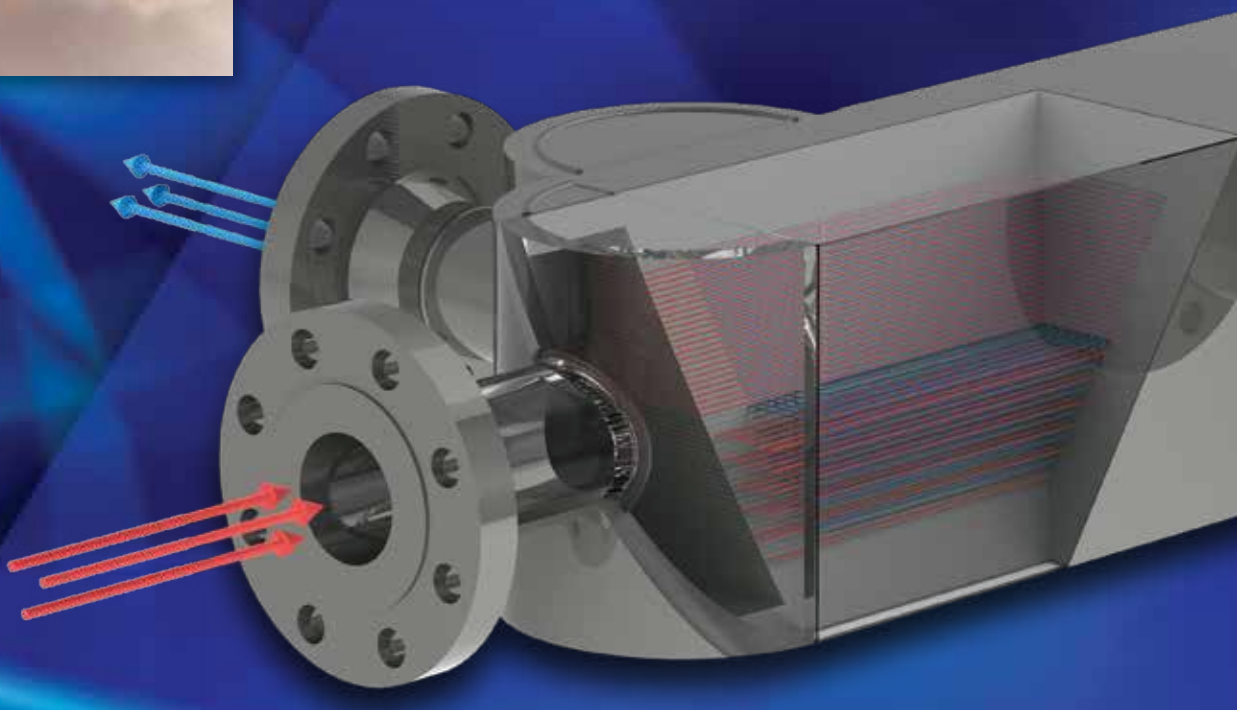
# DIFFUSION BONDED MICROCHANNEL HEAT EXCHANGERS



VACUUM PROCESS ENGINEERING



## Compact Exchangers for Demanding Applications

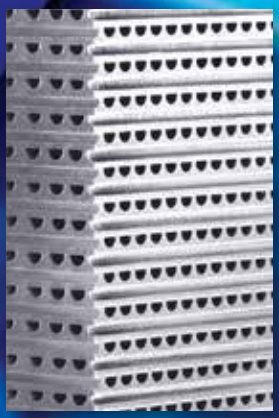
VPE Diffusion Bonded Microchannel Heat Exchangers (MCHEs) are ideally suited for critical applications where reliability, efficiency and a small footprint are advantageous. The diffusion bonding process ensures that parent material strength is attained throughout the core of the heat exchanger, making VPE Diffusion Bonded MCHEs ideal for extreme pressure and temperature service.

# DIFFUSION BONDED MICROCHANNEL HEAT EXC

***VPE has manufactured diffusion bonded devices since the 1980s and continues today, providing engineering, development and fabrication of reliable Diffusion Bonded MCHEs. Through internal research, and in collaboration with US and international research organizations, our team turns customers' challenges into practical, cost-effective solutions.***

## Advantages of VPE Diffusion Bonded MCHEs

- Reliable performance under extreme pressure and temperature operation
- High efficiency heat exchange using microchannels
- Close approach temperatures in counter-flow configuration
- Corrosion resistant alloys and multi-stream capable
- Productive use of small spaces relative to other configurations
- Savings achieved through a small footprint and low weight



## Accessibility to Engineering Expertise

- Rich background in research and development
- Creative, engineering-based approaches to solving customer challenges
- Deep diffusion bonding experience
- Hundreds of microchannel heat exchangers manufactured for numerous diverse applications
- Advanced equipment and state-of-the-art technical facilities

## Production and Processes

- Large-assembly diffusion bonding experience and facility
- Tested and proven manufacturing processes
- Redundant and burst capacity facility for fast turn and reliable sourcing
- 60,000 sq. ft. of design, lab, quality assurance and production space
- Responsive to customer lead times

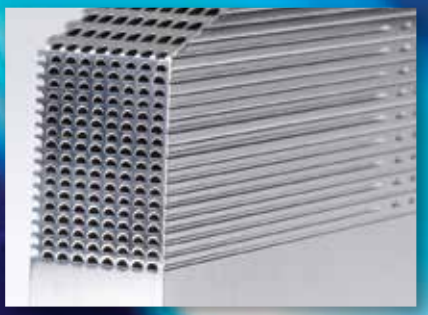
## Cutting Edge • Creative • Cost-Effective

The VPE engineering team encourages exploration and experimentation, always striving to be leaders of metallurgical innovation. VPE is at the vanguard of technological creativity in the fields of joining/bonding, specialized coatings, advanced thermal processing and unique assembly methods.

# HANGERS

## Solutions for Challenging Environments

- Renewable Power:  Solar, Geothermal, Wind (generator cooling)
- Brayton Cycle utilizing supercritical CO2
- Organic Rankine Cycle (ORC)
- Chemical Production: Ethylene, Nitric Acid, Methanol, Propylene
- Synthetic Fuels and Biodiesel
- Gas Generation: Hydrogen and PSA Nitrogen
- Combined Heat and Power (CHP)
- Onshore and Offshore Oil and Gas
- Pharmaceutical
- Waste Heat Recuperation



## Quality Assurance
## Certifications and Registrations

- ISO 9001:2008
- AS9100C:2009
- ITAR registered


Visit **heatexchanger.vpei.com** for more information or call **916-925-6100** to discuss your heat exchanger requirements with one of our experienced engineers.

VPE
VACUUM PROCESS ENGINEERING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