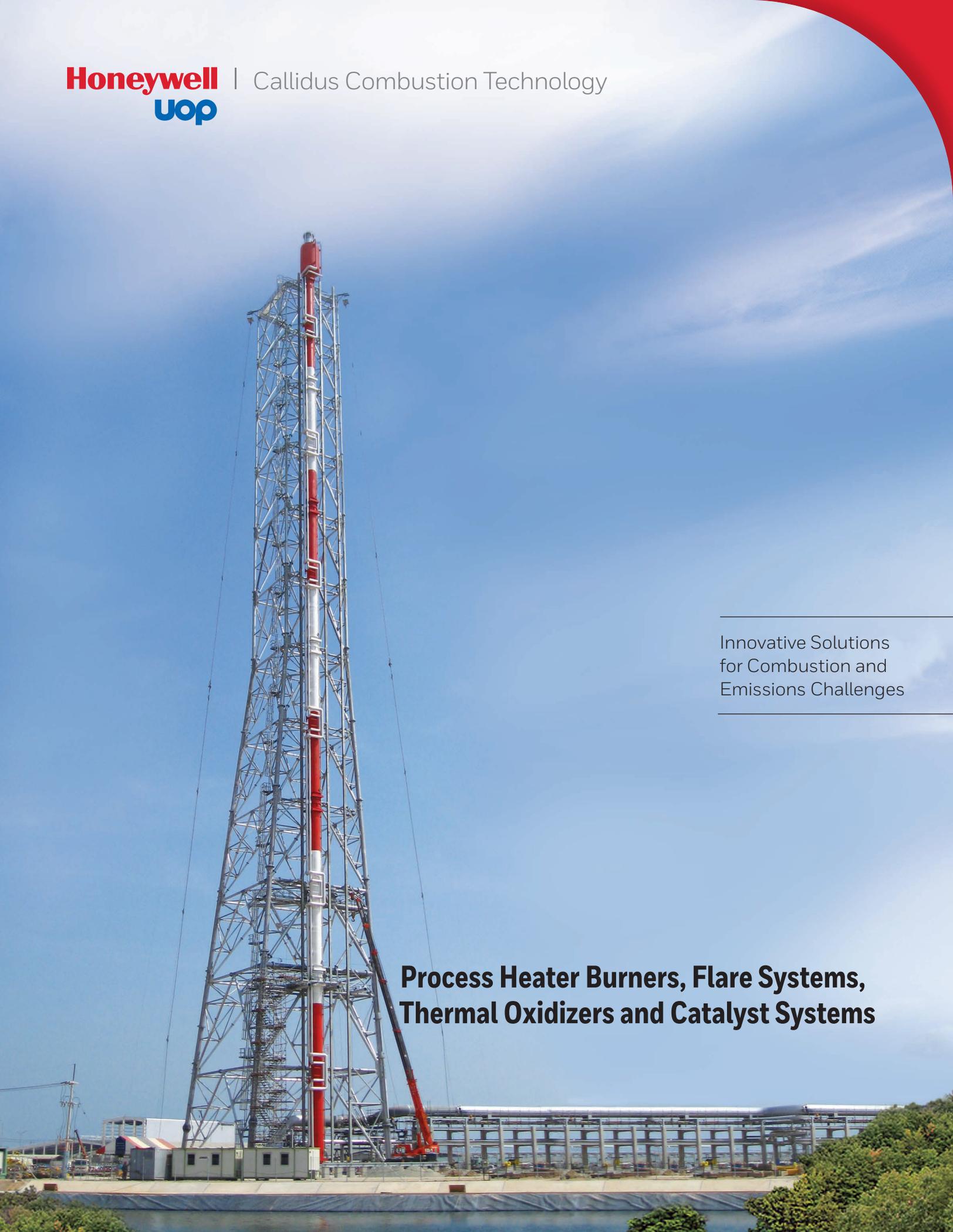


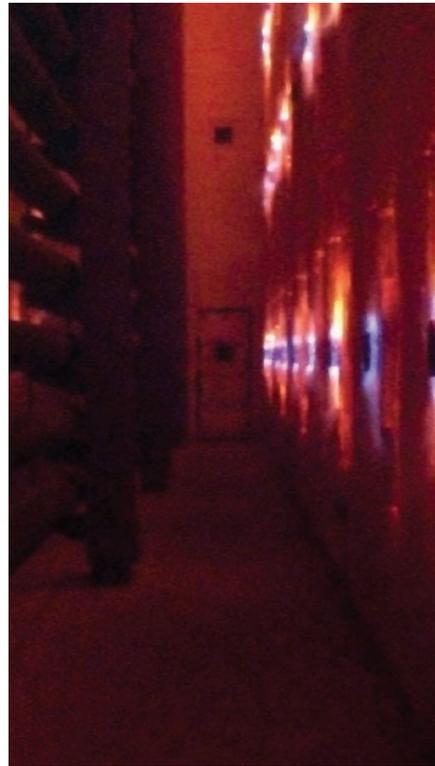
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Innovative Solutions  
for Combustion and  
Emissions Challenges

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**Process Heater Burners, Flare Systems,  
Thermal Oxidizers and Catalyst Systems**

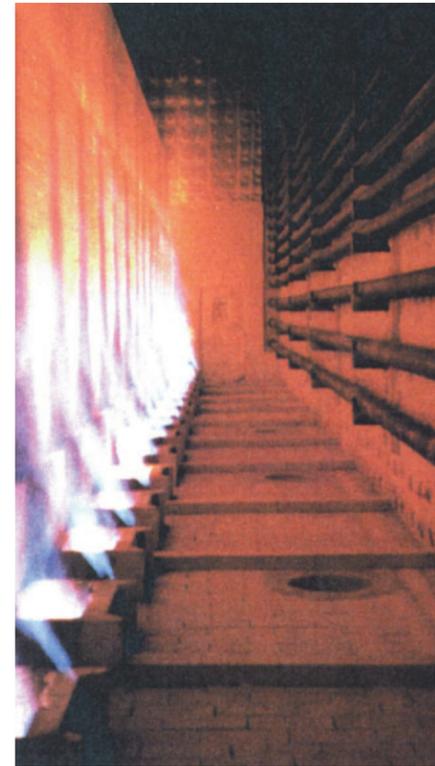




Radiant Wall Burner



Ultra Low NOx - CUBL Burners



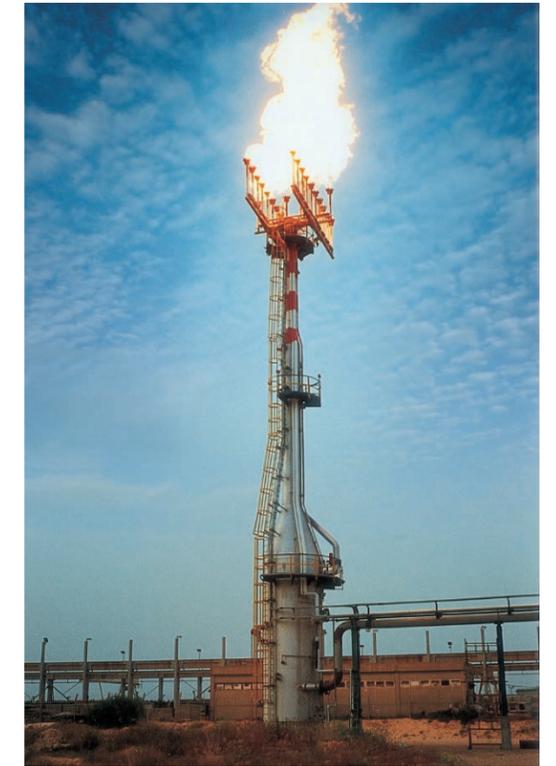
Flat Flame Low NOx Burners

### Innovative Flare Design

Honeywell UOP Callidus develops flares and vapor control systems that are designed to match your specifications, process criteria and performance requirements. Our flare equipment functions at optimum levels, meeting EPA and international standards, while safeguarding plant and terminal operations. With thousands of flare system start-ups worldwide, you will find our flares and flare systems operating in hydrocarbon processing, oil and gas production, petrochemical processing and the steel and carbon black industries. Call our flare experts to assist you with your technical needs.



Flare Gas Recovery



Multipoint Steam Flare

# Experience, Integrity, Professionalism and Technology

With more than two decades of overcoming combustion and emissions challenges, Honeywell UOP Callidus consistently leads the industry by setting the standards for maximum performance and minimum emissions.

### Burners that Set the Standards

Innovation and technology are the keys to our burners. For more than two decades, our team has been on the leading edge in designing burner equipment. The burner design group has worked in cooperation with our customers to develop the technology and solutions to some of the greatest challenges in the reduction of NO<sub>x</sub>. Honeywell UOP Callidus set the standard with the patented low emission (LE) burner achieving NO<sub>x</sub> levels of 20 ppm. More recently, we demonstrated our technical expertise and leadership with the introduction of the next generation Ultra Low NO<sub>x</sub> CUBL burner.

The CUBL has demonstrated exceptional stability, reliability and performance under the most stringent emissions regulations, regularly operating between 10-15 ppm in the field.

Honeywell UOP Callidus burners can be found in fired heaters and burner related services for the refining and petrochemical industries across the globe, and they consistently demonstrate the lowest NO<sub>x</sub> rating and highest quality on the market today.

### Applications

- Refinery process heaters
- Reforming furnaces
- Cracking furnaces
- Coking furnaces

### Burners

- Forced and natural draft
- Conventional and low NO<sub>x</sub>
- Gas, liquid or combination
- Ambient or preheated forced draft
- Radiant wall
- Pre-mix applications

### Specialty Burners

- Ultra low NO<sub>x</sub>
- Low Btu gas burners
- Vertical up or down and horizontal fired



Totally Enclosed Ground Flare (TEGF)



Multipoint Smokeless Flare

### Applications:

- Hydrocarbon processing
- Oil & gas production
- Steel industries
- Carbon black industries
- Petrochemical industries
- Offshore/onshore production
- Terminals

### Flares and Flare Systems:

- Pipe flare
- Multipoint smokeless flare
- Steam smokeless flare
- Ultra low-noise steam flares
- Totally enclosed ground flare
- HP gas assisted flare
- Air assisted flare
- Low Btu flare
- Pit burners
- Portable flare
- Offshore flare
- Production flare

### Flare Gas Recovery Systems:

- Refinery, petrochemical, and gas processing applications
- Multiple compressor technologies available

### Associated Auxiliary Equipment:

- Knock-out vessels
- Liquid seal vessels
- Ignition systems
- Pilot monitors

## Thermal Oxidizers to Meet your Requirements

Let Honeywell UOP Callidus' experienced thermal oxidizers engineering group focus on meeting your individual requirements. Our broad base of incinerator designs and wealth of experience allow us to evaluate your environmental problems and provide custom designed solutions for your specific situation. Our incineration systems are in service in a variety of gas and liquid waste applications including halogenated, chlorinated, fume, tail gas and nitrogen bearing wastes. Each system is designed and built to meet the highest quality standards and to meet or exceed the latest environmental regulations including NO<sub>x</sub> standards.



Thermal Oxidizer System



SCR System

### Applications:

- Fume and vent streams
- Sulfur plant tail gas streams
- Carbon black tail gas streams
- Wastes containing salts
- Halogenated organic wastes
- Nitrogen bearing wastes
- Acrylonitrile process wastes
- Spent solvents
- Pharmaceutical plant wastes
- Petrochemical plant wastes
- Hazardous waste streams

### Thermal Oxidizer Systems:

- Fume incinerator
- Tail gas incinerator
- Halogenated waste incinerator
- Low NO<sub>x</sub> (deNO<sub>x</sub>idizer™) system
- Down-fired incinerator
- Catalytic oxidizers

### Catalyst Systems

Honeywell UOP Callidus can help you reduce levels of NO<sub>x</sub>, CO and hydrocarbon emissions for Simple Cycle Catalyst Systems and Selective Catalytic Reduction Systems (SCR). Serving the power and process industries, each catalytic system is custom designed to meet each clients individual operational and emissions specifications.

### Power Installations:

- Flow distribution device
- Ammonia injection grid
- Catalyst and associated equipment
- Silencing equipment
- Ammonia vaporization/flow control
- Outlet stack with EPA test ports

### Process Installations:

- Dilution air system
- Catalyst and associated equipment
- Ammonia vaporization
- Inlet/exhaust ducting
- Reheat burner (as required)

## Field Service and Parts

We recognize that the value of our equipment is dependent on performance. Our experienced field service personnel are dedicated to ensuring that our equipment is installed properly and operated with maximum efficiency throughout its functional life. We also provide a range of rental flares for various applications. Contact one of our representatives for further information regarding rental equipment.

Honeywell UOP Callidus provides full-service spare parts and retrofitting capabilities for our own and other manufacturers' equipment. We can replace existing components with our own parts or upgrade equipment to enhance performance.

Our global commitment to total customer service ensures that Callidus products and systems meet your expectations.



Global Field Service

### Our Services Include:

- Turnkey installation
- Operator training
- Tuning for optimum performance
- Rental flares
- Troubleshooting equipment performance
- Individual part replacement
- Retrofitting for enhanced performance

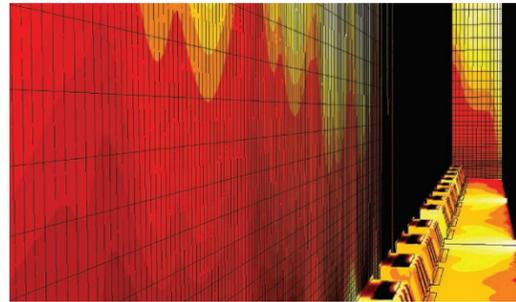
## Research and Development

Honeywell UOP Callidus is committed to leading environmental and combustion technology discoveries, and we know that part of our success is directly related to our investment in research and development. Our industrial-scale R&D center, which tests burners, thermal oxidizers and flares, is the prime example of this investment. The center is fully instrumented with computerized data acquisition systems devoted to research and development of new products, product improvements, new combustion processes and problem solving applications.

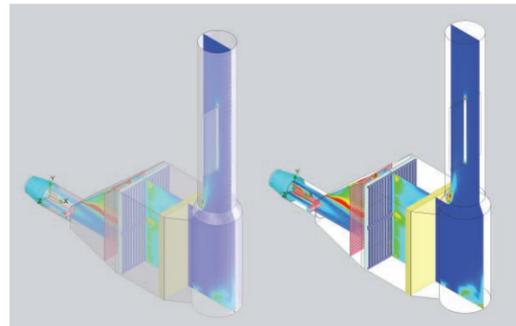
Because of our expertise, innovation, flexibility and emphasis on customer service, we have been selected on multiple occasions to work in cooperation with our clients to develop cutting-edge equipment and solutions to specific process challenges and needs.

## Computational Fluid Dynamic Modeling

Our in-house Computational Fluid Dynamic Modeling (CFD) capabilities are used for engineering analysis of critical applications. CFD creates three-dimensional models of fired equipment in conjunction with Fluent® software to solve thermodynamic equations. When our models are combined with real world experience and years of proven R&D, we are able to predict field performance of entire systems and are able to avoid potential performance problems prior to fabrication.



Thermal modeling using computational fluid dynamics



Thermal and flow computer simulations are used in each system we design



Burner test facility houses seven test furnaces

### Flare Test

#### Capabilities:

- Multipoint
- Enclosed ground
- Production flares
- Steam assist
- Air assist
- Offshore

### Burner Test

#### Capabilities:

- Seven test furnaces
- Low NO<sub>x</sub>
- Radiant wall
- Gas, liquid or combination
- Vertical and horizontal fired
- Ultra Low NO<sub>x</sub>

### Typical Applications:

- Rapid prototyping of custom-designed equipment
- Performance confirmation of upgrade and retrofit projects
- Resolution of issues with challenging in-field equipment
- Pre-purchase product assessment



## Quality and Manufacturing

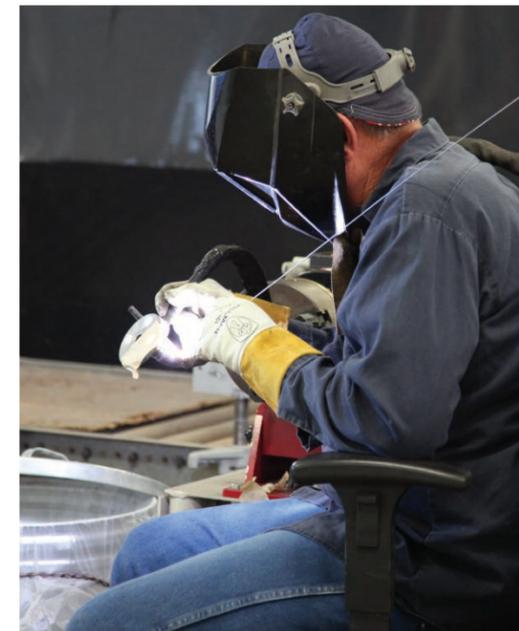
Our manufacturing facility demonstrates the highest quality standards in the industry. In some cases, many of our internal quality assurance programs require higher performance standards than some industry certifications. Callidus fabrication and manufacturing is certified ISO 9001:2000 in USA and China.

Callidus manufacturing and fabrication facilities are upgraded on a continual basis. Our current facilities in Oklahoma and China occupy more than 115,000 sq. ft. consisting of proven manufacturing techniques and equipment. As a global player in the combustion equipment market, some of our fabrication takes place around the world in strategic locations, while proprietary items are fabricated at our U.S. facility.

At Honeywell UOP Callidus, quality assurance is everyone's job. Every step of the project is consistently reviewed to ensure that we live up to your expectations.



Callidus China Fabrication Facility



Callidus manufacturing emphasizes safety, quality and accuracy

## Global Installation Teams

Our installation teams provide first-class service to our customers. Familiarity and hands-on experience with product lines enable us to provide enhanced product management and efficient, expedient turnarounds with a high level of quality control

### Advantages:

- Product knowledge and experience
- Project management
- Cost controls
- Project reporting
- Modularization
- Quality control
- Identify, resolve unexpected surprises



Honeywell UOP Callidus headquarters - Tulsa, Oklahoma. USA



Honeywell UOP Callidus combustion test facility - China



Honeywell UOP Callidus 82,000 sq. ft. manufacturing and fabrication facility in USA

### Global Coverage

Callidus reaches the global market through our headquarters located in Tulsa, Oklahoma, USA, with regional direct sales offices and independent sales representation around the world. Meeting our customers' expectations and setting the standards for the combustion industry have always been our goals. Each burner, flare, thermal oxidizer and catalyst system we design and manufacture is built with those goals in mind.

### Test Facility

Honeywell UOP Callidus test facilities in the U.S. and China are used for combustion technology research and development, as well as for customer demonstrations. Our array of test systems allow us to closely match actual field operating conditions, providing results that will more accurately predict actual measured performance.

### ISO 9001:2008 Certification



USA Certification



China Certification

High-Performance Combustion Solutions  
Service – Parts – Installation

Contact us—we're here to help.

[CallidusHelp@Honeywell.com](mailto:CallidusHelp@Honeywell.com)

#### For more information

For more information, please visit [www.callidus.com](http://www.callidus.com) to find a local sales representative

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