



**Pre-engineered, Modular Systems
to Reduce Flare Emissions**

Modular Flare Gas Recovery System Manufactured to Industry Standards

Honeywell UOP Callidus is a leading provider of flare systems, flare gas recovery technology and a range of flare system capabilities. With a heritage of technical expertise, we take pride in providing economical flares with high destruction efficiency, high smokeless capacity, low noise and low radiation for a broad range of flare applications. Our team has hundreds of years of combined flare design experience and has been involved in the fabrication, installation, start-up, and service of thousands of flare systems worldwide.

Dedicated to achieving zero flaring, our Flare Gas Recovery Systems (FGRS) address the growing concerns regarding flare emissions, while also saving money. We call it “Saving made simple.”



The Only Flare Gas Recovery System You'll Ever Need

Losses to the flare, including process gases, fuel gas, steam, nitrogen and natural gas represent the largest source of loss in a refinery or chemical plant. The cost of these losses can add up quickly. Honeywell UOP Callidus' Modular Flare Gas Recovery System collects process gases from the flare header before it reaches the flare, compresses them and allows them to be reused within the facility's fuel gas system. In some cases, the recovered gases can also be used as a refinery feedstock. Our industry leading Modular Flare Gas Recovery System helps refinery owners meet emissions regulations, reduce risk, extend equipment life and, certainly, add to your bottom line.

Environment

Worldwide, efforts to reduce emissions have become increasingly important. By capturing flare gas before it is burned by the flare, we can

significantly reduce the amount of emissions produced on an annual basis. You may be eligible for emissions credits when using this technology.

Public image

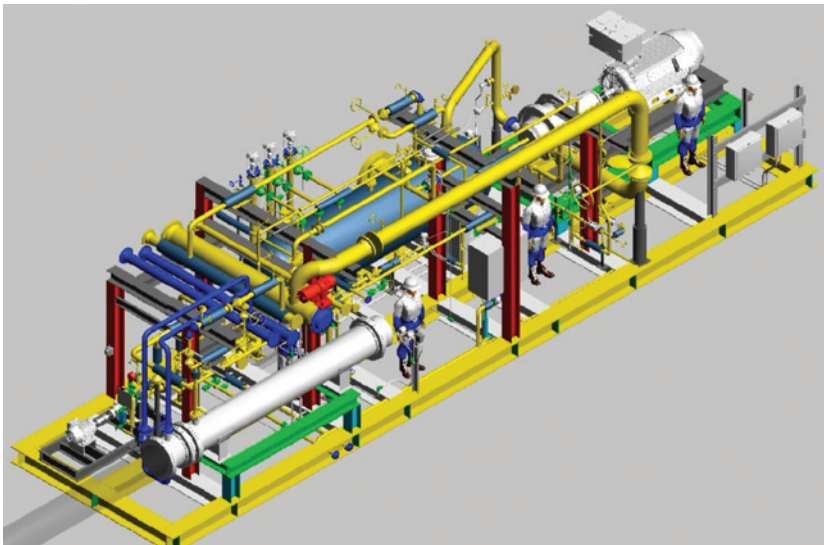
No one likes to see or hear a flare system, especially the communities surrounding your facility. By installing our Flare Gas Recovery System, owners can significantly decrease the number of flaring events that occur annually, limiting the risk of major or emergency cases.

Cost

By capturing and compressing recovered flare gases, our flare gas recovery system provides a ready supply of gas that can be used in your facility's fuel gas system or as a refinery feedstock. This allows you to reduce the amount of gas purchased from outside, or increase your supply of salable gas to create a higher revenue stream. Also, by minimizing the number of flaring events, you significantly reduce steam consumption, which saves you more money.

Equipment life

Fewer flaring events means that the flare tip is less exposed to the negative effects of combustion, extending the flare tip life. This means fewer spare parts orders and a longer period between tip replacements.



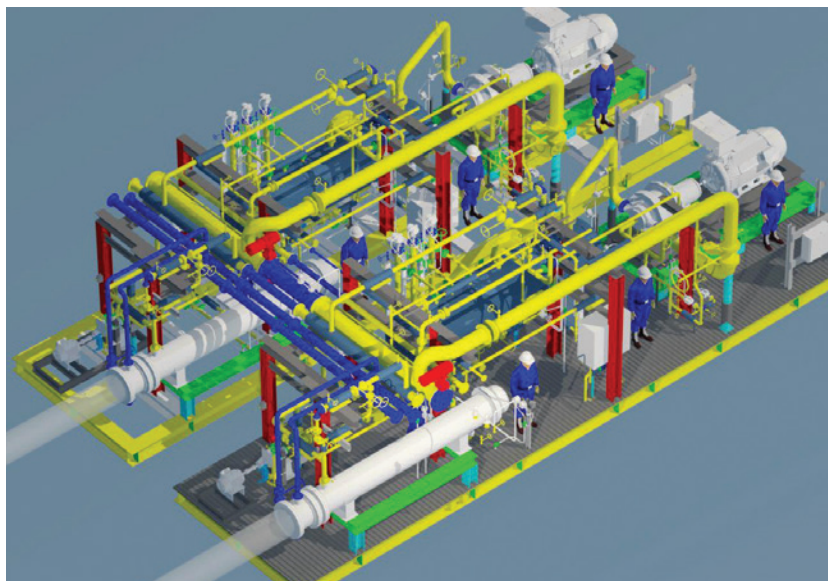
Single-Skid Modular FGRS Unit

Modular Flare Gas Recovery Systems (FGRS)

The Honeywell UOP Callidus Modular Flare Gas Recovery System comprises of several major components — the primary component being the compressor unit. We use proven liquid ring technology, which is capable of addressing a range of process compositions typical in flare applications. Honeywell UOP Callidus' Flare Gas Recovery System also integrates seamlessly into an existing flare system.

System Safety

Installing any flare gas recovery system without evaluating the impact on the flare system can result in poor performance and potentially hazardous conditions. Since the flare gas recovery system is pulling gas from the flare header, it could potentially create a vacuum condition within the flare system and pull air in from the flare tip. To prevent this from happening, we recommend conducting a liquid seal evaluation with every Flare Gas Recovery System application. We have extensive experience designing and supplying deep liquid seals, which enable the installation and correct operation of our Flare Gas Recovery Systems, without compromising flare system performance. As a world leader in flare system equipment, Honeywell UOP uses a proprietary liquid seal design to avoid liquid seal turbulence, which can result in flare pulsing.



Dual module with interconnecting piping

Custom made simple

Modular Flare Gas Recovery Systems are pre-engineered, skid-mounted packages for faster delivery and startup. Modules can be combined to provide increased recovery capacity and pre-engineered piping kits provide interconnection between modules. Single skid modules allow for faster installation and reduced field assembly costs. Multi-module configurations provide maintenance efficiency as units share common parts.

With our deep understanding of controls, our Flare Gas Recovery Systems are designed to integrate and communicate with your existing controls platforms. Our typical configuration uses PLC based controls to monitor and control the system components. However, the system can also communicate and integrate with existing customer distributed control systems.

Sizing service

Honeywell UOP Callidus offers a Flare Gas Recovery sizing service, which monitors and tracks flare header activity to better match your process conditions and make recommendations for the appropriate module configuration. We use state-of-the-art flow data logging to periodically record data which can then be used to determine which configuration is best for your application. The testing and monitoring services have zero impact on your existing system.

Powerful savings

Achieving your zero flaring goal has never been so simple. Reducing emissions, saving money and extending the life of your flare equipment – all with a pre-engineered, Honeywell UOP Callidus Modular Flare Gas Recovery System.

Single Module Specifications

| | |
|------------------------------|----------------------------|
| Capacity (ACFM) | 670 |
| Gas Inlet Pressure (inch WC) | 6+ |
| Gas Outlet Pressure (psig) | ~100 |
| Dimensions (feet L x W x H) | 48 x 12 x 15 |
| Weight (lbs dry) | 75,000 |
| Motor (Hp) | 500 compressor, 15 Startup |
| Instrumentation | Class 1 div 2, group C,D |
| Piping | B1A2-NACE, B1A1, B1A2 |

| Capacity / MW | Typical | High | Low |
|-----------------|---------|------|-----|
| MW | 23.5 | 59.7 | 7.3 |
| Mass flow lb/hr | 2312 | 6000 | 716 |



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

Honeywell UOP 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.

In Addition to Flare Gas Recovery Systems, Honeywell UOP Callidus Offers:

- Ultra-low NO_x burners
- Flares, flare systems and flare gas recovery systems
- Thermal oxidizer systems
- Field services and parts
- CFD Modeling
- Training and schools

ISO 9001:2008 Certification



USA Certification



China Certification

High-Performance Combustion Solutions
Service – Parts – Installation

Contact us—we're here to help.

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For more information

For more information, please visit www.callidus.com to find a local sales representative

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UOP7326-10
March 2016
Printed in U.S.A.
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