Callidus Flare Gas Recovery

Reducing flare emissions

COMPREHENSIVE FLARE GAS RECOVERY SYSTEMS

Callidus Technologies, LLC
Callidus Technologies, a leading provider of flare systems, is pleased to offer our Flare Gas Recovery (FGR) technology in conjunction with its broad range of flare system capabilities. With a heritage of technical expertise, Callidus prides itself in providing economical flares with high destruction efficiency, high smokeless capacity, low noise, and low radiation for a broad range of flare applications. The Callidus team has hundreds of years of combined flare design experience and has been involved in the fabrication, installation, startup, and service of thousands of flare systems worldwide.

With a passion to drive towards Zero Flaring, Callidus’ Flare Gas Recovery Systems offer customers an easy way to address growing concerns regarding flare emissions and save money at the same time. We call it “Saving made simple.”

**How can FGRS save for you?**

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. The Callidus 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. Flaring can also be perceived as environmentally unfriendly among surrounding communities. The Callidus Flare Gas Recovery System helps the owner save in several different ways, including:

**Saving the environment**

With global concerns over emissions rising, efforts to reduce the amount of emissions are becoming increasingly important. By capturing the flare gas before it is burned by the flare, we can significantly reduce the amount of emissions produced on an annual basis. Customers may be eligible for emissions credits when utilizing the technology.

**Saving your public image**

Nobody likes to see or hear a flare system, especially the communities surrounding your facility. By installing Callidus FGRS owners can significantly decrease the number of flaring events that occur annually, limiting them to major or emergency cases.

**Saving money**

By capturing and compressing the recovered flare gases, Callidus FGRS provides a ready supply of gas that can be utilized within your facility’s fuel gas system or as a refinery feedstock. This allows you to reduce the amount of gas purchased from outside, saving money, or increase the supply of salable gas for the facility, creating a higher revenue stream. Also, since the number of flaring events are minimized, the flare’s steam consumption is also decreased significantly, saving additional money for the facility.

**Saving the flare tip**

As noted before, Callidus FGRS will significantly decrease the number of flaring events that occur annually. Fewer flaring events means that the flare tip is being exposed to the negative effects of combustion less, thus extending the flare tip life. This means fewer spare parts orders and a longer period between tip replacements.

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**Case Study:**

Callidus Flare Gas Recovery Systems can be found in locations around the world. One example of our system, and the impact it can have on a petrochemical plant, can be seen in a case with a customer located in China. In this case, the Callidus Flare Gas Recovery Systems significantly reduced the greenhouse gas emissions from the plant and the harmful impacts normally associated with flaring. By recovering the gases routinely sent to the flares, the plant prevented (an estimated) 32.5 metric tons of NOx, 176.8 metric tons of CO, and 67,000 metric tons of CO2 from being emitted into the atmosphere each year. Thermal radiation from the flames was greatly reduced, which resulted in an increase in overall safety of the plant. Light and noise – two other objectionable side effects of flaring – were also greatly reduced.

In addition to reducing flare emissions, light, and noise, installation of Callidus FGRS provided substantial cost savings because the recovered gases were used as fuel or process feedstock. At time of commissioning the estimated fuel savings were millions of dollars per year, resulting in payback of the system in less than 9 months. See www.callidus.com/flares/fgru for more case study information.
The Callidus Flare Gas Recovery System consists of several major components. The primary component of the system is the compressor unit. The compressor design is critical and determines the system's capacity and turndown capability. Callidus uses Liquid Ring Compressors as the preferred mode of compression within the recovery systems. Liquid ring technology is proven in flare gas recovery applications and used because of its durability and its ability to address the wide range of process compositions typical in flare applications. Callidus also offers additional compressor types depending on the project application. With a firm flare system heritage, Callidus understands how best to integrate our Flare Gas Recovery System into a flare system. While not part of the flare gas recovery package unit, one vital part of the total system is the liquid seal for the flare system. 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, Callidus recommends a liquid seal evaluation be conducted with every Flare Gas Recovery System application. Callidus has extensive experience in the design and supply of “deep” liquid seals which enable the installation and correct operating conditions for Callidus FGRS without compromising flare system performance. Callidus employs proprietary liquid seal design to avoid liquid seal turbulence - which can result in flare pulsing - and is recognized globally as a world leader with this equipment.

Callidus Flare Gas Recovery Systems (FGRS)

FGRS – Custom made simple
Callidus Flare Gas Recovery Systems are tailored to meet each customer’s unique requirements. Systems are sized based on customers’ gas compositions and anticipated flare gas header flow rates. System components are, to a large extent, skid mounted for ease of installation.

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

Callidus Sizing Service
Callidus Technologies understands how best to apply flare systems to petrochemical processes. We offer our FGRS sizing service which monitors and tracks actual flare header activity to better match your actual process conditions with your flare gas recovery needs. We utilize state of the art flow data logging to periodically record data which can then be used to help you decide what configuration is best for your application. The testing and monitoring have zero impact on your existing system while being performed.

Powerful savings
Reducing emissions, saving money, and extending the life of your flare equipment – all done automatically with a reliable system engineered specifically for your application. We know that zero flaring is your goal, so let Callidus help you achieve that goal. Callidus Flare Gas Recovery System, it’s ‘Saving made simple’. For more information please call or email us today.
Test Facility
The Callidus test facility is in continual use for combustion technology research and development as well as customer witnessed demonstrations. Our array of test systems allows us to closely match actual field operating conditions, providing results which will more accurately predict actual measured performance.

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 company goals. Each burner, flare, thermal oxidizer and catalyst system we design and manufacture is built with those goals in mind.

In Addition to Catalyst Systems, Callidus Offers:
- Ultra-low NOx Burners
- Flares, Flare Systems, and Flare Gas Recovery Systems
- Thermal Oxidizer Systems
- Field Services and Parts
- CFD Modeling
- Training and Schools

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