



ZEECO ALRUSHAID  
MIDDLE EAST LIMITED

# HPAAS FLARE

## High-Pressure Air Assist System



BURNERS

FLARES

INCINERATORS

PARTS & SERVICE

# HPAAS FLARE

## High-Pressure Air Assist System

*Without Air Assist*



### Smokeless Flare Solutions

To meet increasingly strict environmental regulations and to promote cleaner energy production at their facilities, many oil, gas and petrochemical companies seek to upgrade existing smoking utility flares to provide smokeless flaring of hydrocarbon gases. They desire a more positive public profile and a longer service life for their flare systems. In many situations, a smokeless flaring upgrade using flare technologies such as steam assist and low-pressure air assist may not be technically or economically feasible. The question is how to retrofit their smoking pipe flares economically and efficiently and to minimize the shutdown time involved with upgrading flare technology.

Enter the High-Pressure Air Assist System (HPAAS). HPAAS technology is the result of years of intensive research and development into solutions for retrofitting existing pipe flares with smokeless technology that was conducted by the world's largest oil company, Saudi Aramco. Saudi Aramco has successfully installed and operated the technology on dozens of flare systems in Saudi Arabia, and now the patented HPAAS technology is available to the world market through a licence agreement between Saudi Aramco and Zeeco Al-Rushaid Middle East Limited.



*Without Air Assist*

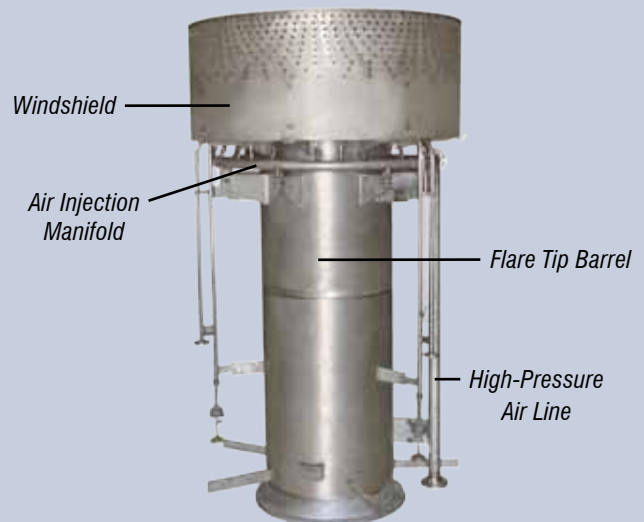


*HPAAS Smokeless Flaring Technology*

### How HPAAS Works

HPAAS uses supersonic air injection nozzles to inspirate combustion air at a much higher efficiency than any previous air assisted smokeless flaring technology. This combustion air produces smokeless flaring, lower radiation levels and increased flare tip service life. Compressed air can be provided to the system through the existing plant air supply or from a dedicated air compressor.

The HPAAS flare tip includes a computer-modeled windshield that provides flame protection, while allowing proper combustion airflow via a high-pressure air injection manifold on the flare tip outside of the high-heat zone. The air manifold is fitted with supersonic air nozzles that are specifically designed to provide maximum air injection while preventing flame pulldown on the flare tip.



### Easy Retrofit

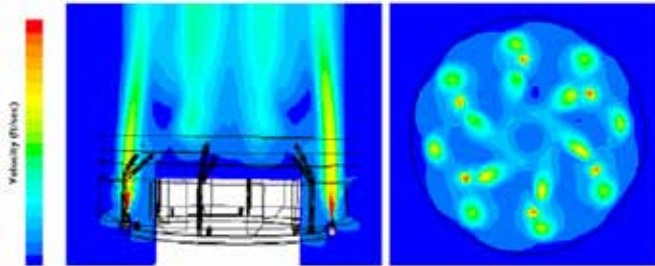
The flare system is one of the most important safety devices in any hydrocarbon processing facility. Any time the flare is taken out of service for maintenance, replacement or a retrofit, the corresponding plant must also be shut down. Long plant shutdowns for flare system retrofits result in considerable amounts of lost production and revenue for the plant. While other flare retrofits, such as low-pressure air assist designs, are difficult, time consuming and costly, the HPAAS flare tip bolts to the existing flare stack. The small air supply line mounts easily to the flare stack with pipe support brackets.

The HPAAS system can be easily retrofitted to an existing flare system in a quick and cost-effective manner, and normal shutdown time for a full HPAAS flare upgrade is typically three days or less. HPAAS systems have been most effective in areas where water for steam is scarce or expensive, since the systems do not require steam injection for smoke suppression.



*With Air Assist*

## CFD Technology



The chemical and hydrocarbon industry employs Computational Fluid Dynamics (CFD) as a proven modeling tool to aid in equipment design. Zeeco combines advanced CFD technology with our extensive experience in the design, fabrication and operation of combustion equipment in order to ensure optimal flare system performance.

## HPAAS Success = A New Joint Venture

HPAAS technology is an ideal solution for a wide variety of applications for the same reasons it has been so successful for Saudi Aramco. The company's success with HPAAS technology prompted Saudi Aramco to make the patented HPAAS technology available worldwide.

Aramco licensed the HPAAS technology exclusively to Zeeco Al-Rushaid Middle East Limited. Zeeco Al-Rushaid is a joint venture company in Saudi Arabia, complete with in-Kingdom facilities for research, development, testing, manufacturing, sales and support. The Al-Rushaid Group is a prominent and leading Saudi owned company operating in Kingdom and internationally principally involved in construction, engineering, manufacturing, trading, real estate and technology. The company employs over 2000 people and includes 37 subsidiaries and 24 joint venture companies. Zeeco is the world leader in flare technology with headquarters just outside Tulsa, Oklahoma USA. Zeeco specializes in combustion equipment including flares, industrial burners and incineration systems.

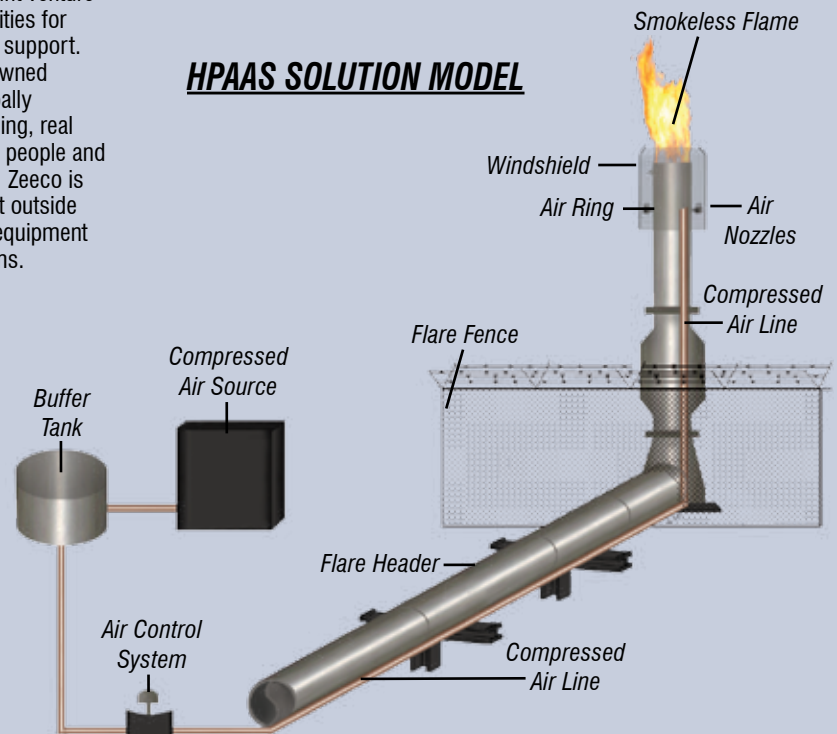
## Why Choose Zeeco Al-Rushaid

Zeeco has provided combustion and environmental solutions around the world for more than 30 years. The cornerstone of Zeeco's success has been to provide customers with superior quality, on-time shipments and competitive pricing. Let Zeeco Al-Rushaid put their experience in the Middle East and around the globe to work for you by installing HPAAS technology to meet your flare needs. Call today for more information on Zeeco Al-Rushaid's full line of flare products and replacement parts.

## Advantages of HPAAS

- Easy retrofit to existing flares with minimal installation time
- Adaptable to a wide range of conditions
- No steam or service water required
- Robust design
- Low utility costs for operation

## HPAAS SOLUTION MODEL





**BURNERS**



**FLARES**



**INCINERATORS**



**PARTS & SERVICE**



**ZEECO AL RUSHAID  
MIDDLE EAST LIMITED**

**Zecco Corporate Headquarters**  
22151 East 91st Street  
Broken Arrow, Oklahoma 74014 USA  
Phone: +1 918 258 8551  
Fax: +1 918 251 5519  
E-mail: [sales@zeeco.com](mailto:sales@zeeco.com)  
[www.zeeco.com](http://www.zeeco.com)

**Zecco Al-Rushaid Middle East Limited**  
Section N, Block 1, Lots 1, 2 & 3  
Support Industries Area - 3  
Road #: 106, Connection Road: 112/225  
Jubail Industrial City  
Kingdom of Saudi Arabia  
Mobile: +966 50 304 6217



Representación exclusiva en  
España:

**Soljet Energía S.A.**

Paseo de la Castellana 154, Madrid 28046  
[www.soljet.com](http://www.soljet.com) - Teléfono: 91 458 7732

*CERTIFICATIONS APPLY TO ZEECO HEADQUARTERS.*



CERTIFIED  
NBBI



CERTIFIED  
ASME



CERTIFIED  
ASME



REGISTERED  
ISO 9001:2008