GAS FLARES

Engineering a Safer World

ELEVATED · ENCLOSED GROUND · STEAM ASSISTED · AIR ASSISTED UTILITY · RENTAL · PORTABLE MOBILE · LANDFILL GAS

The Complete CRA Product Range

Every flaring duty has a different constraint: routine flaring versus emergency relief, steam available or not, permanent installation or a turnaround measured in days, a waste stream that already burns clean or one that needs steam or air to stay smokeless. No single flare design answers all of these well.

CRA designs, manufactures, and supports eight flare types built to cover that full range, from unassisted utility flares through refinery-scale steam-assisted systems to enclosed ground flares for noise- and radiation-sensitive sites. Every system shares the same in-house engineering approach: CFD-simulated combustion design, integrated tip-to-stack delivery, and compliance to API 537, API 521 and international flare regulations as standard.

CRA has supplied flare systems into oil and gas, refinery, petrochemical, biogas, and landfill service for over 30 years, engineered end-to-end under one roof and backed by the same ISO 9001 quality system across every product in this catalogue.

OPEN ELEVATED FLARE

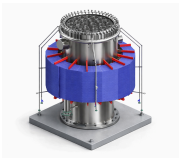
Unassisted, air, or steam assist

Safe, elevated combustion for routine venting and emergency relief

ENCLOSED GROUND FLARE

Zero visible flame

Contained, low-noise combustion for relief and vent gas at process sites



STEAM ASSISTED FLARE

Turndown up to 50:1

High-capacity smokeless combustion for refinery-scale relief loads

AIR ASSIST FLARE

Turndown up to 50:1

Smokeless combustion without steam infrastructure

UTILITY FLARE

Unassisted, open flame

Rugged unassisted combustion for clean-burning vent streams

RENTAL FLARE

Operational in 24-48 hours

Pre-engineered systems ready for rapid site mobilisation

PORTABLE MOBILE FLARE

Same-day setup

Self-contained combustion for temporary and remote operations

LANDFILL GAS FLARE

Corrosion-matched construction

Enclosed combustion built for a landfill's changing gas and flow

APPLICATIONS + Oil & Gas + Refinery + Petrochemical + LNG + Biogas + Landfill Gas

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ISO 9001 QUALITY ASSURANCE MANAGEMENT

SELECTING A FLARE

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EIGHT FLARE TYPES ON ONE ENGINEERING BASIS, MATCHED TO DUTY, SITE, AND UTILITIES

Flare	Specify it when	Headline figure
Open Elevated	Routine venting and emergency relief at height; unassisted, air-assisted, or steam-assisted tips	3 assist configurations
Enclosed Ground	Noise, radiation, or visible flame must be contained near process units or sensitive sites	Zero visible flame
Steam Assisted	Refinery-scale relief loads where high-pressure steam is already available on site	10,000-300,000+ Nm3/hr
Air Assist	Smokeless duty without a steam header; tank batteries, production pads, sites without steam	Blower, 1-250 HP[L]
Utility	Waste stream already burns clean; smokeless performance is not a regulatory requirement	Unassisted, open flame
Rental	Temporary need: turnaround, commissioning, or emergency, without a permanent installation	24-48 hours to operate
Portable Mobile	Remote or short-duration deployment; well testing, pipeline tie-ins, field operations	Same-day setup
Landfill Gas	Municipal solid waste site where flow and gas composition shift over decades of operating life	EPA NSPS/EG, API 537, API 521

CRA ADVANTAGE

+ Optimal Design & Performance	+ Accomodate Special Requirements
+ On-Time Delivery	+ Responsive & Organized Team
+ Stringent Quality Management	+ Fast Turnaround
+ Cost Effective Maintenance Packages	+ Long-Term CRA Support

Figures per CRA published product data; items marked with a superscript L are drawn from published industry literature.

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OPEN ELEVATED & ENCLOSED GROUND

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PRODUCT RANGE, CONDENSED FROM THE INDIVIDUAL TECHNICAL DATASHEETS

OPEN ELEVATED FLARE

Elevated stack · unassisted, air-assisted, or steam-assisted tip · API 537, API 521

Burns waste gas at the top of a dedicated stack, holding thermal radiation and combustion products above grade. Tip design, unassisted, air-assisted, or steam-assisted, is matched to gas composition and flow range, with an always-lit pilot maintaining ignition through every condition.

KEY METRICS

+ Pilot: Always-Lit, Continuous
+ Assist Configurations: 3 Types
+ Standards: API 537, API 521
+ Structure: Self-Supported, Guyed, Derrick^{L}

APPLICATIONS

Emergency relief, hydrocarbon vent gas, LNG and petrochemical flaring, pipeline blowdown

ENCLOSED GROUND FLARE

Refractory-lined chamber at grade · contained flame, noise, and radiation · API 537, API 521, EU IED

Burns waste gas inside a refractory-lined chamber at ground level, containing flame visibility, noise, and radiation that an open flare would release directly to site. CFD-simulated design is matched to each site's gas composition, including lean, sour, or contaminated streams.

KEY METRICS

+ Destruction Efficiency: >98%
+ Visible Flame: Zero
+ Standards: API 537, API 521, EU IED
+ CFD-Validated Per Site

APPLICATIONS

Relief and vent gas, fugitive emissions, LNG and petrochemical flaring, acid gas and sour gas flaring, tail gas

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STEAM ASSISTED & AIR ASSIST

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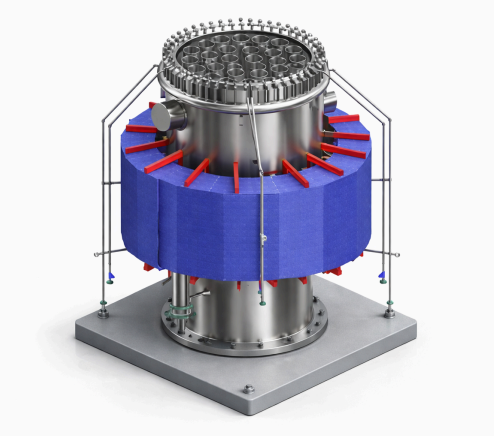
STEAM ASSISTED FLARE

High-velocity steam injection at the tip · staged to load · API 537, API 521

Injects high-velocity steam at the flare tip to entrain combustion air and break up heavy hydrocarbon molecules before they crack into soot. Steam injection stages to actual load, cutting consumption 40-60% versus single-stage operation while holding smokeless performance at peak relief.



KEY METRICS

+ Steam Ratio: 0.2-0.5 Kg Per Kg Gas
+ Turndown: Up To 50:1
+ Peak Flow: 10,000 To 300,000+ Nm3/hr
+ Standards: API 537, API 521

APPLICATIONS

High-volume relief and emergency flaring, heavy hydrocarbon vent gas, off-spec waste gas streams

AIR ASSIST FLARE

On-site blower · forced-air mixing · no steam header required

An on-site blower delivers forced air to the flare tip, entraining waste gas and supplying the oxygen needed for complete, smokeless combustion without a steam header. Air delivery stages across the flow range from minimum pilot conditions to full emergency relief.

KEY METRICS

+ Air Source: On-Site Blower
+ Turndown: Up To 50:1
+ Blower Power: Approx. 1-250 HP[L]
+ Standards: API 537, API 521

APPLICATIONS

Tank vapors and loading emissions, variable flow and low-pressure streams, odorous waste gas streams

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ISO 9001 QUALITY ASSURANCE MANAGEMENT

UTILITY & RENTAL

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UTILITY FLARE

Open flame at stack tip · no blower, steam, or injection hardware

Burns waste gas as an open flame at the top of a vertical stack, with no blower, steam header, or auxiliary injection. Structure type, self-supported, guyed, or derrick, is selected based on stack height, wind loading, and site footprint.

KEY METRICS

+ Pilot: Always-Lit, Continuous
+ Assist Type: Unassisted
+ Structure Options: 3 Types
+ Standards: API 537, API 521

APPLICATIONS

Routine vent and purge gas, emergency relief, low-pressure hydrocarbon gases, pipeline blowdown gas

RENTAL FLARE

Pre-commissioned skid or trailer · global fleet · API 537, API 521

Arrives fully assembled, pressure-tested, and commissioned at CRA's facility, then ships to site and reaches operational status within 24 to 48 hours of arrival. Capacity and configuration are matched to the client's gas composition, flow rate, and expected duration before dispatch.

KEY METRICS

+ Fleet: Global Availability
+ Commissioning: 24-48 Hours On Site
+ Mount: Skid Or Trailer
+ Standards: API 537, API 521

APPLICATIONS

Plant turnarounds, commissioning, emergency relief, general waste gas disposal

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PORTABLE MOBILE & LANDFILL GAS

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PORTABLE MOBILE FLARE

Integrated burner, ignition, and controls · quick-connect · API 537, API 521

Integrates burner, pilot assembly, ignition panel, and flow control into a single trailer- or skid-mounted unit before leaving CRA's facility. Connects to the gas source through flexible hose or quick-connect fittings on arrival, with no permanent piping or civil work.

KEY METRICS

+ Ignition: Redundant Electronic
+ Setup Time: Same Day
+ Mount: Trailer Or Skid
+ Standards: API 537, API 521

APPLICATIONS

Well testing, pipeline commissioning, remote operations, emergency relief

LANDFILL GAS FLARE

Multi-burner refractory enclosure · corrosion-matched · EPA NSPS/EG, API 537, API 521

Distributes gas across multiple burners inside a refractory-lined enclosure, with automated control modulating flow from a landfill's peak generation years through its long decline. Alloys and coatings are selected against the H2S, moisture, and siloxane content typical of landfill gas.

KEY METRICS

+ Destruction Efficiency: >98%
+ Automated Flow Modulation
+ Standards: EPA NSPS/EG, API 537, API 521
+ Construction: Corrosion-Resistant, Site-Matched

APPLICATIONS

Landfill gas collection systems, cap vent destruction, backup flaring for LFG-to-energy plants, off-spec gas ahead of RNG upgrading

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