KBC
A Yokogawa Company

Flaretot

FLARE SAFETY AND EMISSIONS

Flaretot™ analysis software delivers advanced simulation capabilities for flare and blowdown analysis to ensure safety, efficiency, and emissions reduction.

The integration of Flaretot with Petro-SIM® and Multiflash® technologies offers a comprehensive simulation solution to manage the rapid design, revamp, and audit of flare networks across oil, gas, and refining operations.

Bringing
DECARBONIZATION
to Life®

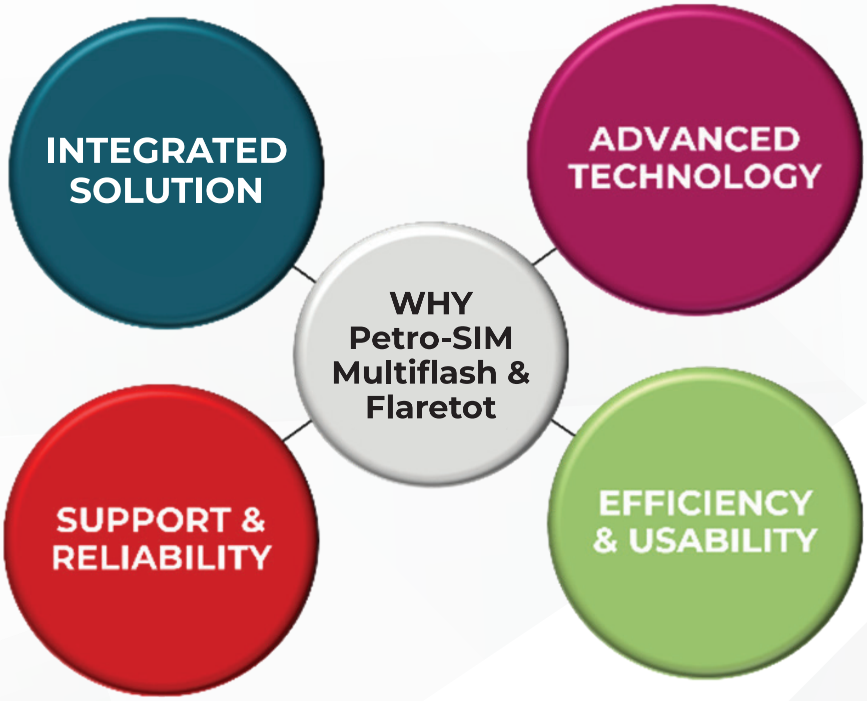
Elevate Your Flare System Performance

With Flaretot's advanced modeling capabilities, engineers can accurately design and optimize flare systems–without compromising sustainability.

The integrated solution of Flaretot with Petro-SIM and Multiflash bridges the gap left by traditional tools—combining comprehensive production and process modeling with advanced flare analysis to deliver a single solution that meets the industry's complex demands.

Now, engineers effortlessly simulate and optimize processes at different scales, from a single unit to an entire facility. Precise calculations cover critical aspects like relief valve loads, flare radiation, pollutant dispersion, noise production, flare system purge rates, comprehensive auditing, and vessel blowdown calculations.

With Flaretot software, engineers avoid undersizing or oversizing relieving devices while accurately quantifying unplanned emissions. This capability ensures safe, compliant, and environmentally responsible operations while avoiding the dispersion of unwanted emissions.



Integrated Solution

Comprehensive modeling seamlessly integrates into a unified flare system analysis.

Advanced Technology

Accurate simulations for informed decision-making.

Efficiency & Usability

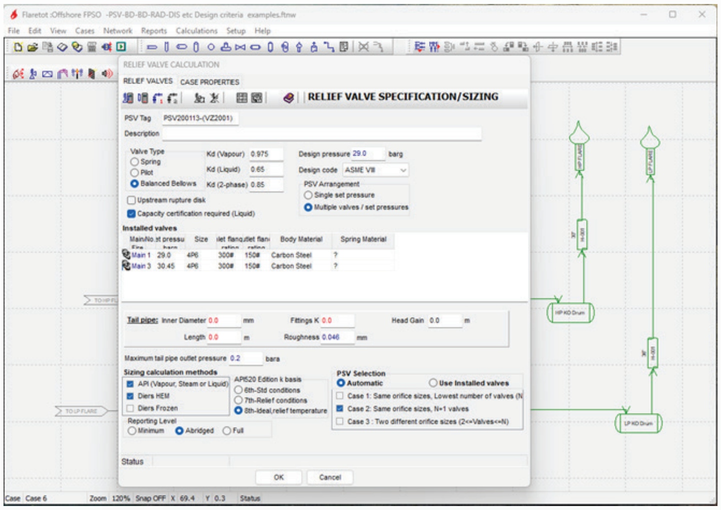
User-friendly, intuitive interface with streamlined workflows deliver swift and effective system analysis.

Support & Reliability

Dedicated, 24/7 expert support for reliability and continuous operational excellence gives you peace of mind.

Optimizing Oilfield Flaring

Integrating Flaretot technology with KBC's Integrated Asset Modeling solution offers a comprehensive, multiscale view across subsea production and top-sides processing facilities. This precise flare system design approach from project inception minimizes costly design revisions throughout its lifecycle. With thorough flare analysis, engineers can enhance upstream operations, monitor equipment, and analyze flaring to reduce emissions and support your net zero goals.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TO HP FLARE
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RELIEF VALVE CALCULATION

RELIEF VALVES CASE PROPERTIES

RELIEF VALVE SPECIFICATION/SIZING

PSV Tag PSV200113-(VZ2001)

Description

Valve Type
○ Spring
○ Pilot
● Balanced Bellows

Kd (Vapour) 0.975
Kd (Liquid) 0.65
Kd (2-phase) 0.85

Design pressure 29.0 barg
Design code ASME VIII

PSV Arrangement
○ Single set pressure
● Multiple valves / set pressures

☐ Upstream rupture disk
☑ Capacity certification required (Liquid)

Installed valves

Main/No. Fire	t pressu bara	Size	let flang rating	utlet flan rating	Body Material	Spring Material
Main 1	29.0	4P6	300#	150#	Carbon Steel	?
Main 3	30.45	4P6	300#	150#	Carbon Steel	?

Tail pipe: Inner Diameter 0.0 mm Fittings K 0.0 Head Gain 0.0 m
Length 0.0 m Roughness 0.046 mm

Maximum tail pipe outlet pressure 0.2 bara

Sizing calculation methods
☑ API (Vapour, Steam or Liquid)
☑ Diers HEM
☐ Diers Frozen

API520 Edition k basis
○ 6th-Std conditions
○ 7th-Relief conditions
● 8th-Ideal,relief temperature

Reporting Level
○ Minimum ● Abridged ○ Full

PSV Selection
● **Automatic** ○ **Use Installed valves**
☐ Case 1: Same orifice sizes, Lowest number of valves (N
☑ Case 2: Same orifice sizes, N+1 valves
☐ Case 3 : Two different orifice sizes (2<=Valves<=N)

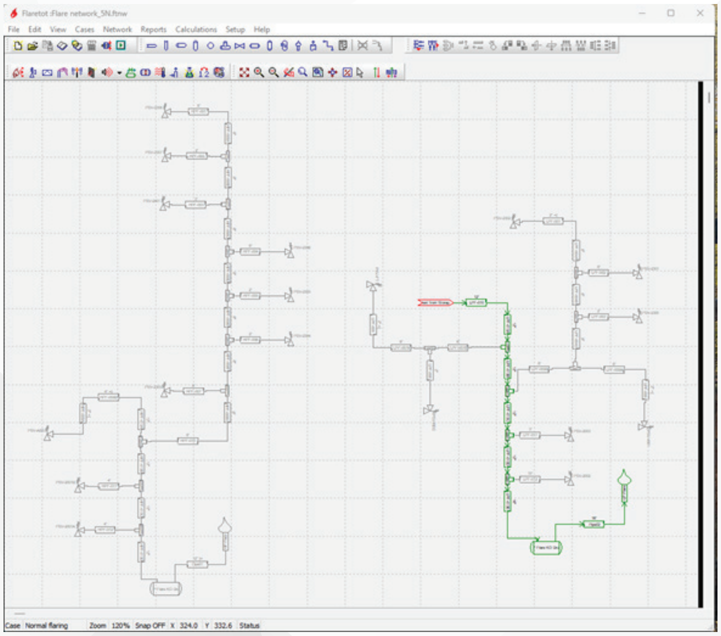
Status

OK Cancel

Case Case 6 Zoom 120% Snap OFF X 69.4 Y 0.3 Status

Refinery-wide Flare Management

Flaretot transforms refinery operations by enabling meticulous flare design to ensure safe operations. This tool helps predict the dispersion of emissions and hazardous substances by providing insights into plume dispersion and noise control. The outcome - more effective management of environmental impact and improved compliance with strict regulations. Integrated with Petro-SIM, Flaretot offers a comprehensive solution for refinery-wide process optimization and emissions reduction, further supporting sustainable refining operations.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Advanced Technology, User-friendly, Cost-effective

Flaretot technology combines several design modules for flare and safety calculations. Following are its key features and benefits.

Market Problems	Product Features
Multi-Scale Process Model	
Flare and relief/blowdown calculations typically require multiple, disconnected software packages.	Integrates flare, relief, and blowdown modeling into a single environment to eliminate disconnected tools and streamline workflows from design through compliance.
Advanced Thermodynamics	
Traditional flare system designs struggle to model complex, multi-component gas-liquid mixtures that lead to inaccurate results.	Leverages Multiflash advanced thermodynamic and flow assurance modeling capabilities to simulate complex fluids — including hydrocarbons, CO_2, H_2, biofuels, natural gas, and reservoir fluids — ensuring accurate thermodynamic predictions.
Relief Load	
Traditional tools often oversize or undersize relief devices due to poor simulation of valve and pipework behavior during discharge.	Precisely calculates relief loads for fire, gas blowby, and tube rupture while integrating network effects such as inlet piping to protect vessels, equipment, and heat exchangers.
Advanced Blowdown	
Rapid depressurization during blowdown events can cause thermal shock and equipment damage. Inaccurate modeling increases material failures and safety hazards.	Predicts pressure vessel blowdown behavior that accounts for liquid dropout and temperature changes to minimize thermal shocks and safety hazards.
Flare Radiation	
Traditional flare radiation models often fail under variable conditions that increase safety risks.	Simulates flare radiation from multiple flare points and ambient conditions to predict and manage safety impacts of flaring.
Noise Calculation	
Excessive noise from flares, relief valves, and piping can lead to regulatory fines, community disturbances, and worker safety risks.	Precisely estimates noise production from flares, relief valves, and piping to develop effective noise mitigation strategies.
Pollutant Dispersion	
Uncontrolled pollutant dispersion from flaring can result in regulatory breaches, environmental damage, and health risks that undermine both compliance and sustainability efforts.	Accurately identifies pollutant source, location, and intensity to model combined dispersion from multiple sources, supporting effective emissions management and safety planning.
Visualization and Reporting	
Fragmented simulation reporting delays response that increases safety and compliance risk.	Delivers customizable reports for compliance, environmental audits, safety assessments, and facility management.

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