Samia® Italia Srl

Via Bergamo , 39

23807 Merate (LC) - Italy

Tel:+39 039/6065920 Fax:+39 039/6064548

info@samiasrl.com WWW.SAMIASRL.COM

Samia ® Italia Product Catalogue

A BURNING PASSION

Samia® Italia Srl is an independent Organization
is NOT being associated to any other entity showing same Brand Name and/or Logo

SAMIA® ITALIA TECHNICAL CATALOGUE

INDEX

Section 1.1

REFINERY BURNERS

- **SRX®** (Fuel Staged loNOx, Gas firing Burner)
  - Principle of operation
  - Natural Draft Burner
  - Forced Draft Burner
  - Flame Chart (Width, Length)

- **SRG®** (Air Staged loNOx, Oil/Gas combination firing Burner)
  - Principle of operation
  - Natural Draft Burner
  - Forced Draft Burner
  - Flame Chart (Width, Length)

SAMIA® ITALIA TECHNICAL CATALOGUE

INDEX

Section 1.2

REFINERY BURNERS (New Generation)

- **Cone-Mod Design (CMD)**
  - Principle of operation
  - Natural Draft Burner
  - Forced Draft Burner
- **Swirl LoNOx Design (SLD)**
  - Principle of operation
  - Natural Draft Burner
  - Forced Draft Burner
- **Ultra Low NOx Design (SULND)**
  - -Principle of operation
  - -Natural Draft Burner
  - -Forced Draft Burner
- **REGENERATIVE COMBUSTION**

SAMIA® ITALIA TECHNICAL CATALOGUE

INDEX

Section 1.3

REFINERY BURNERS Services

Samia® Italia provides the following services:

- Surveys / Modification
- Feasibility Studies / Retrofitting
- Installation Supervision
- Revamping / Repairs / Upgrade
- Spares / Modification
- Start up

Section 2

FLARES

- OVERVIEW
  - Achievable Emission Limits/Reductions
  - Typical Industrial Applications
  - Emission Stream Characteristics
  - Emission Stream Pre-treatment Requirements
  - Theory of Operation
  - Steam-Assisted Flare Packages
  - Air-assisted Flare Packages
  - Sonic Flare Packages (Single and MULTIARMS Solutions)
  - Ground Flare System (Multi-Point and Enclosed Ground Flares)
  - Advantages
  - Other Considerations

Section 2.1

FLARE ASSEMBLIES

- Self-Supported
- Guy-Supported
- Derrick-Supported
- Off-Shore
- Mobile Flares (Non-stationary)
- Ground Flare (Enclosed/Open)

Section 2.2

FLARE TIPS

- Barrel Flare Tip
- Steam-Assisted Flare Tip
- Air-Assisted Flare Tip
- Sonic/Multipoint Flare Tips

Section 2.3

FLARE SEALS

- Diode Pinecone Seal (Velocity Seal)
- Molecular Seal
- Liquid Seal

Section 2.4

FLARE SERVICES

Section 3

Accesories

- SAMIA ITALIA, design and offer accessories and auxiliary equipment for Flare System and Burners including:

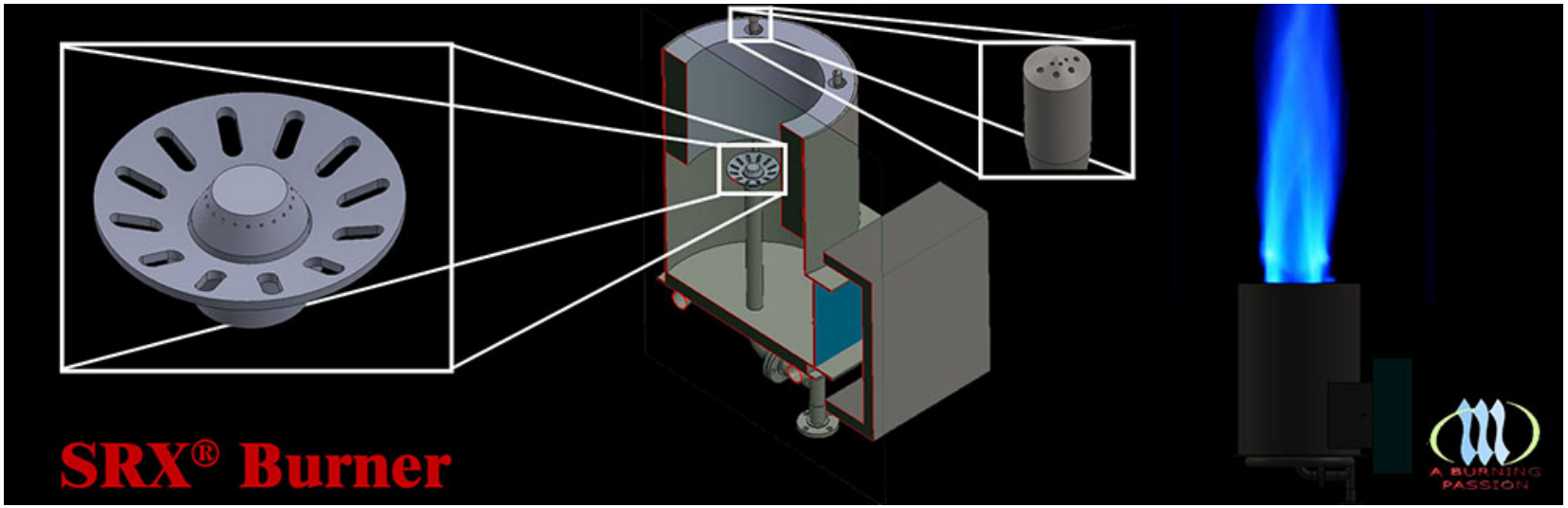
  - Valves, Hoses, Pilots, Ignition Systems, Fittings, Flanges
  - Air-Blowers, CO_2 System, Nitrogen System and LPG System.
  - Storage Tanks
  - Vessels (K.O. Drums and Water Seals (Liquid Seal), Pressure Vessels)
  - Seals and Prefabricated Piping.
  - Monitoring System (UV and IR system or combined system)

Section 1.1

REFINERY BURNERS

SRX® Burner

Fuel-Staged loNOx (Low NOx), Gas Firing



OPERATING PRINCIPLE OF SRX® LoNOx GAS BURNER

Section 1.1

The “SRX®” burner, utilizes a new combustion method referred to as “Self-fuel diluting combustion” which, without diminishing any combustibility, effectively combines the two most powerful reducing mechanisms to decrease NOx:

a) Flue Gas Recirculation

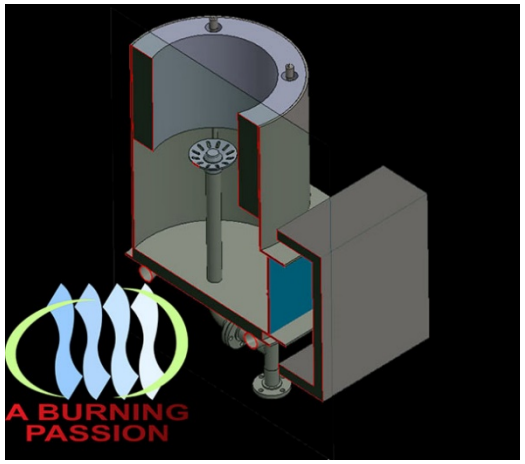
b) Multi-port Fuel Injection

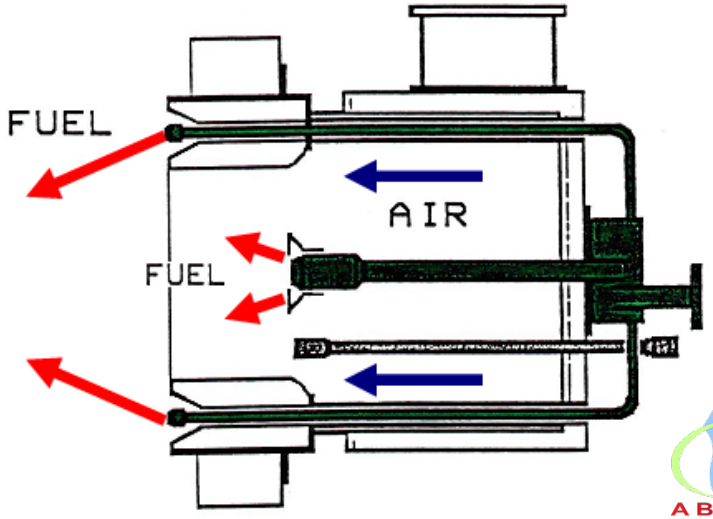
The “SRX” burner, as the attached illustration shows, has an extremely compact construction.

The fuel is ejected through a primary fuel nozzle and four secondary, while all the air for combustion is supplied from the burner tile, thus allowing the primary and secondary combustion zone to be formed within the flame zone.

In the primary zone, combustion is made so that a high temperature area can be formed to hold flames stabilized in the secondary zone where the Super Low NOx performance, according to the “Self-fuel diluting method”, is obtained .

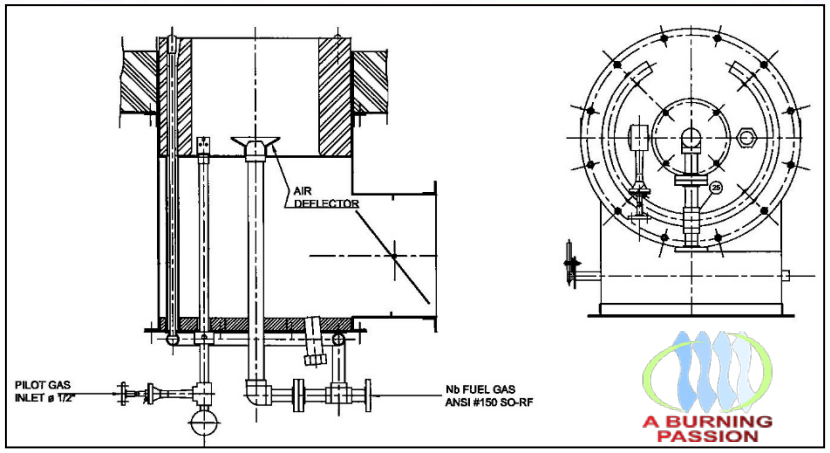
The “SRX®” type gas burner produces a short, round flame and it’s designed to operate under both natural and/or forced draft condition

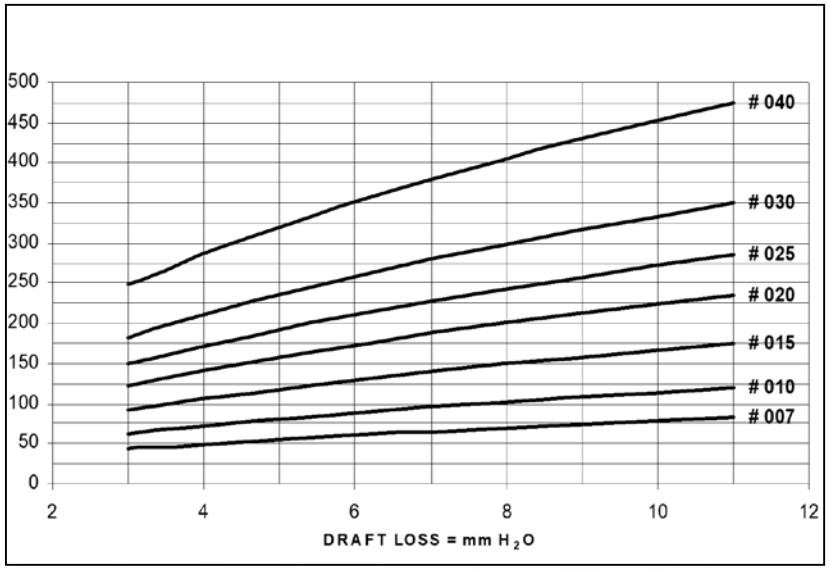


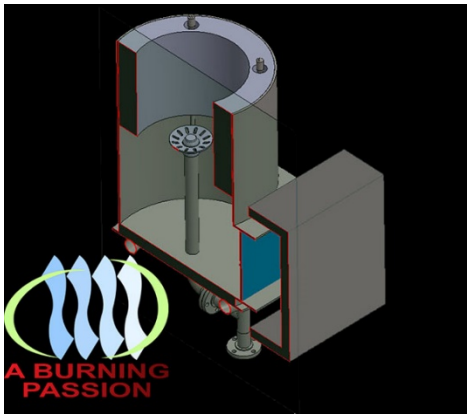


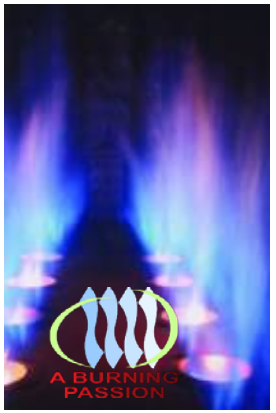
SRX®-NATURAL DRAFT BURNER

Section 1.1





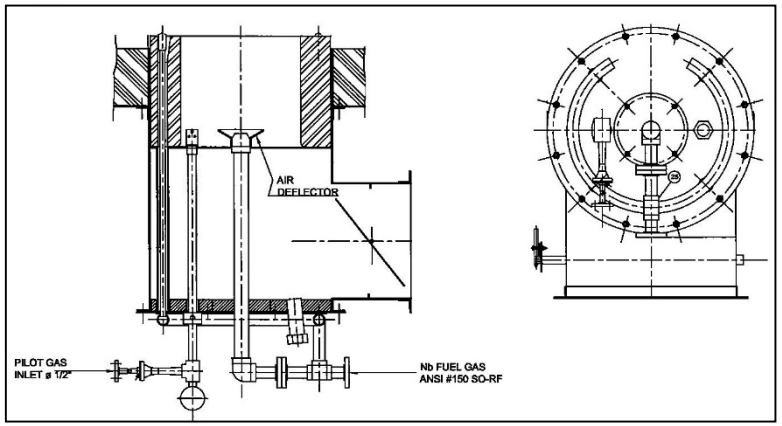


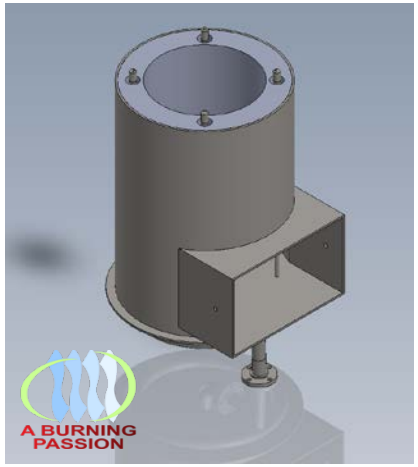


DAMPER CONTROLLER	CarbonSteel
MUFFLE BLOCK	$Al_2 O_3$ 45%
GAS TIP “B”	AISI 304
GAS TIP “A”	AISI 304
DAMPER & SHAFT	A 516 GR 60
AIR CASING thk 5mm	A 516 GR 60
OBSERVATION PORT	A 516 GR 60
PILOT BURNER / PILOT TIP	A 106 gr b / AISI 304
GAS BURNER “B”	A 106 gr b
GAS BURNER “A”	A 106 gr b
DESCRIPTION	***BASE MATERIAL***

SRX® - FORCED DRAFT BURNER

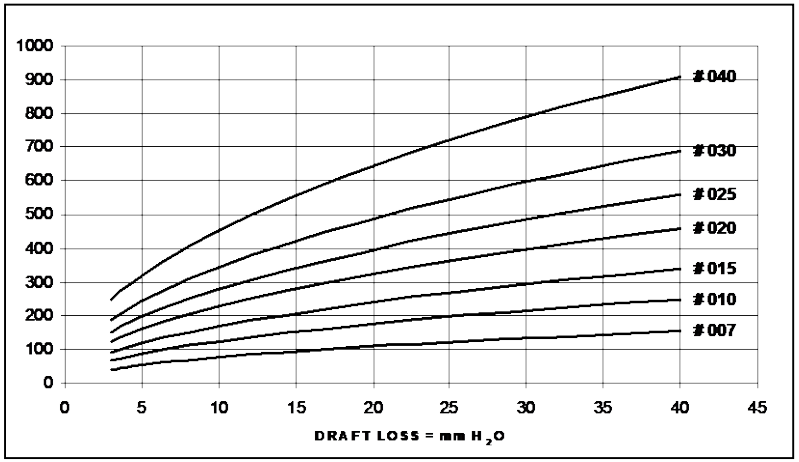
Section 1.1





DAMPER CONTROLLER	CarbonSteel
MUFFLE BLOCK	$Al_2 O_3$ 45%
GAS TIP “B”	AISI 304
GAS TIP “A”	AISI 304
DAMPER & SHAFT	A 516 GR 60
AIR CASING thk 5mm	A 516 GR 60
OBSERVATION PORT	A 516 GR 60
PILOT BURNER / PILOT TIP	A 106 gr b / AISI 304
GAS BURNER “B”	A 106 gr b
GAS BURNER “A”	A 106 gr b
DESCRIPTION	***BASE MATERIAL***

Kcal/h x 10^4 EXCESS AIR: GAS 10%
AIR TEMPERATURE : 20°C



SRX® - BURNER FLAME CHART GAS FIRING
NATURAL and FORCED DRAFT

Section 1.1

CONDITION

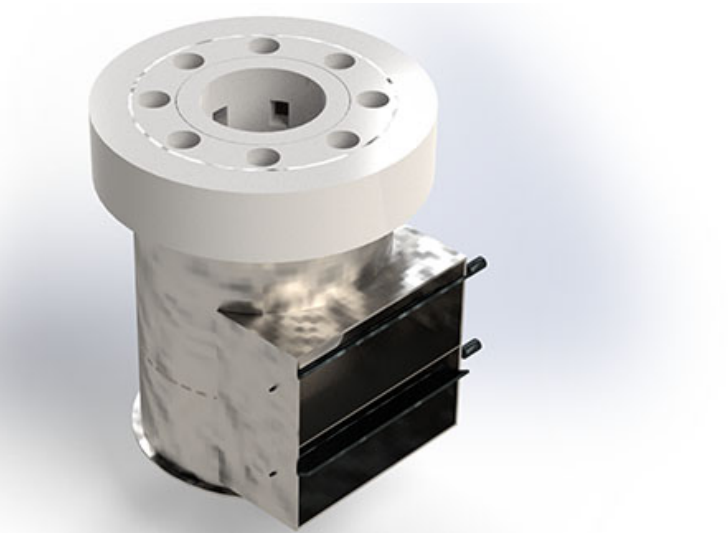
1.EXCESS AIR: 10%

2.FURNACE TEMPERATURE: 800°C

Section 1.1

REFINERY BURNERS

SRG® Burner
Air-Staged loNOx (Low NOx),
Oil/Gas/Hybrid firing



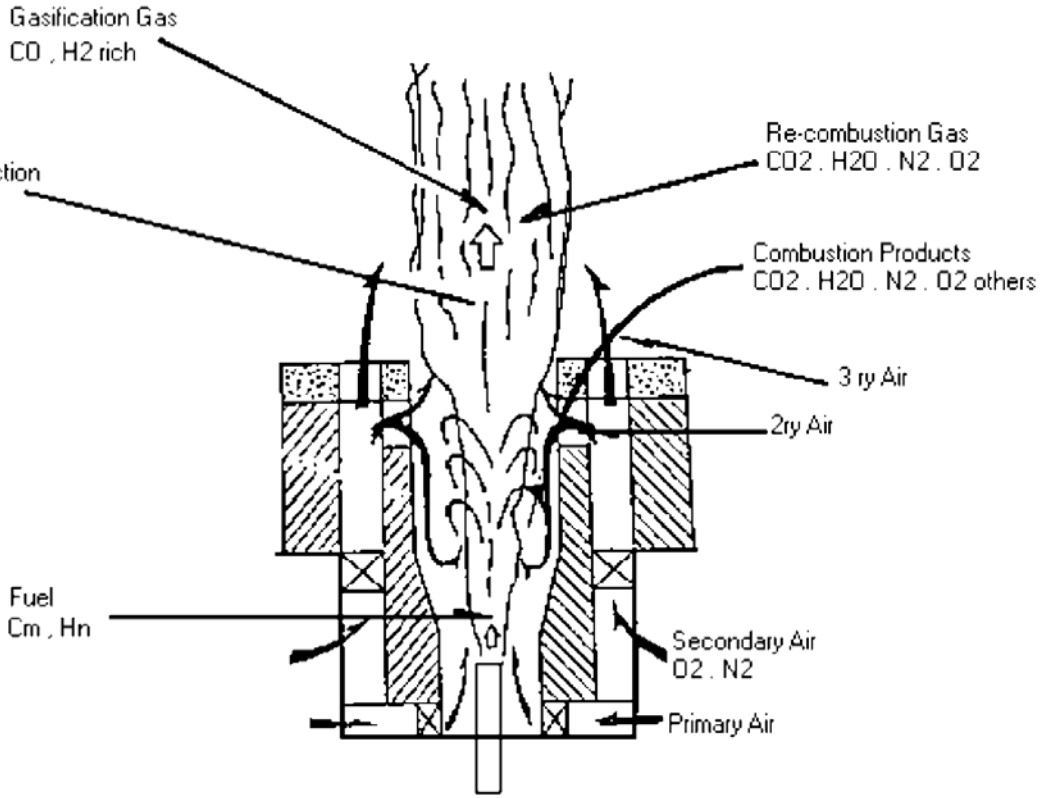
SRG® Burner

OPERATING PRINCIPLE OF SRG® LoNOx GAS AND/OR OIL BURNER

Section 1.1

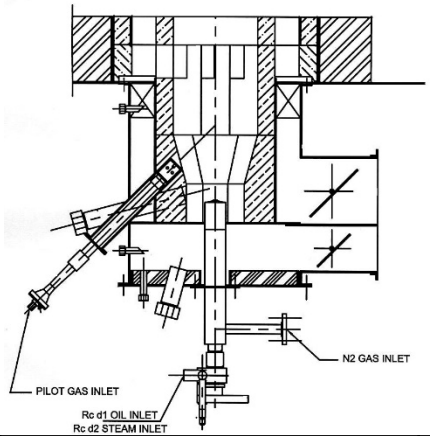
The “SRG®” burner, without requiring any special power, recirculates air and part of the combustion products into the jet energy of the fuel. Thus this is called on the “Self Recirculating Gasification” (SRG®) burner.

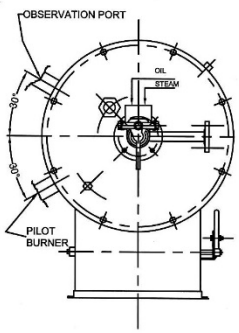
As the attached illustration shows, air and high-temperature combustion products are introduced into the tile by the jet energy of fuel so that partial combustion and the endo-thermic gas reaction takes place. NOx is drastically reduced by the effects of both flue gas recirculation and three stages combustion.



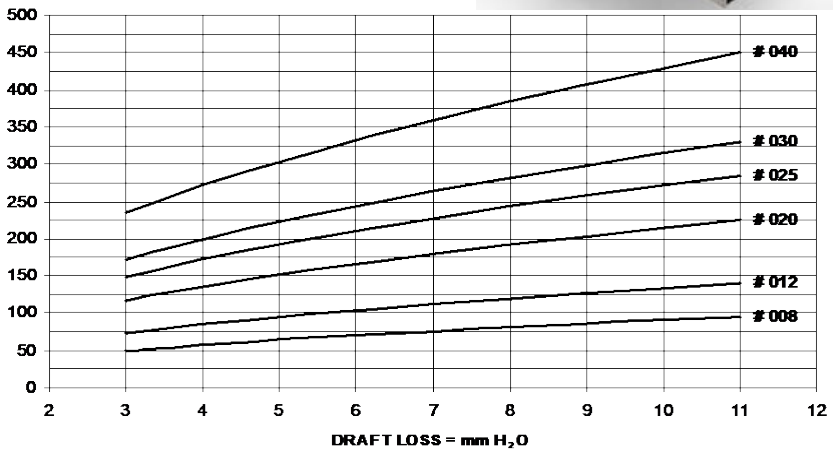
SRG® - NATURAL DRAFT BURNER

Section 1.1



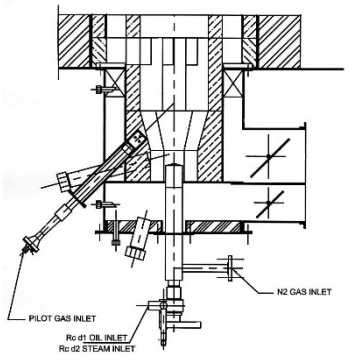


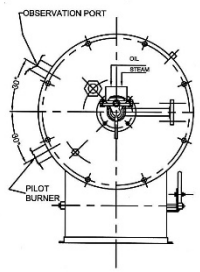
MUFFLE BLOCK	$Al_2 O_3$ 45%
BURNER BLOCK	$Al_2 O_3$ 45%
BURNER TILE	$Al_2 O_3$ 45%
DAMPER CONTROLLER	CARBON STEEL
DAMPER & SHAFT	A 516 GR 60
FRONT PLATE	A 516 GR 60
AIR CASING thk 5mm	A 516 GR 60
OBSERVATION PORT	A 106 gr b / PIREX
PILOT BURNER	AISI 304/A 106 gr b
COMBINATION BURNER	AISI 304/A 106 gr b
DESCRIPTION	***BASE MATERIAL***



SRG ® - FORCED DRAFT BURNER

Section 1.1



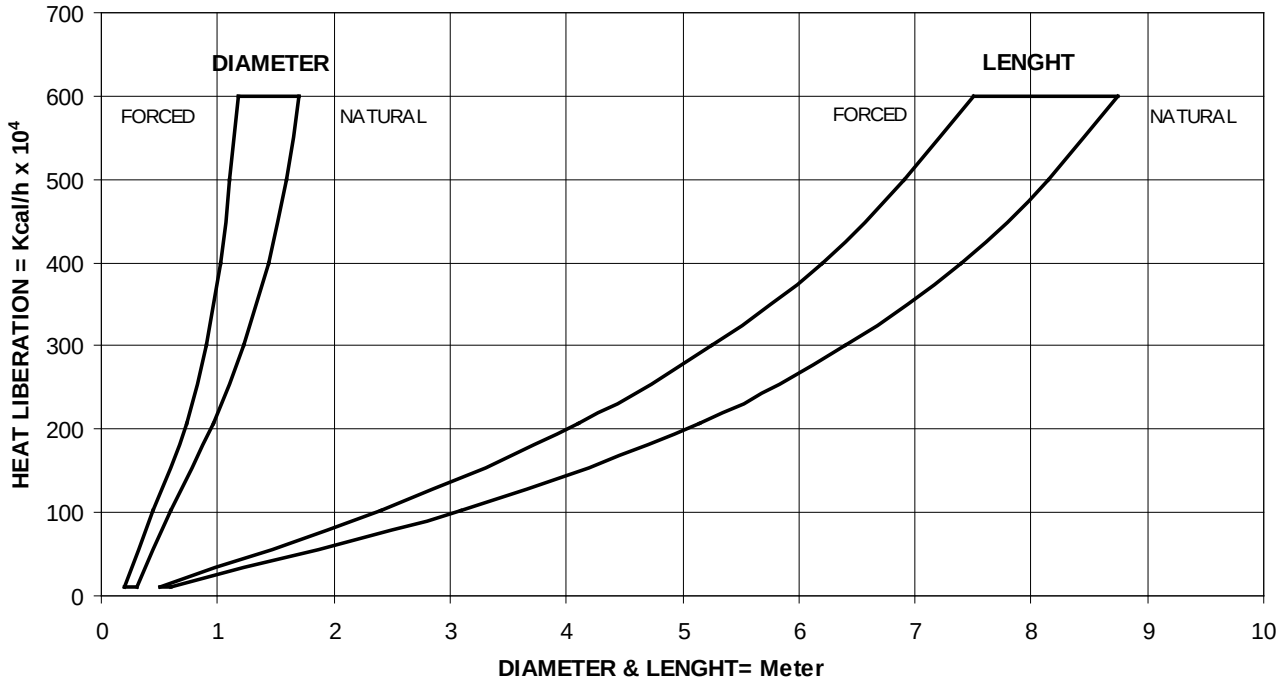


MUFFLE BLOCK	$Al_2 O_3$ 45%
BURNER BLOCK	$Al_2 O_3$ 45%
BURNER TILE	$Al_2 O_3$ 45%
DAMPER CONTROLLER	CARBON STEEL
DAMPER & SHAFT	A 516 GR 60
FRONT PLATE	A 516 GR 60
AIR CASING thk 5mm	A 516 GR 60
OBSERVATION PORT	A 106 gr b / PIREX
PILOT BURNER	AISI 304/A 106 gr b
COMBINATION BURNER	AISI 304/A 106 gr b
DESCRIPTION	***BASE MATERIAL***

STANDARD BURNER DESIGN CONDITIONS	- EXCESS AIR : - COMBUSTION AIR TEMPERATURE : -DRAFT :	15% OIL / 10% AIR AMBIENT / 450 °C 50 – 10 mmH_2O
BURNER MODEL N°	HEAT LIBERATION (kcal/h)	
SRG-M-005-FD	500,000	
SRG-M-010-FD	500,000 ~ 1,000,000	
SRG-M-015-FD	1,000,000 ~ 1,500,000	
SRG-M-020-FD	1,500,000 ~ 2,000,000	
SRG-M-025-FD	2,000,000 ~ 2,500,000	
SRG-M-030-FD	2,500,000 ~ 3,000,000	
SRG-M-040-FD	3,000,000 ~ 4,000,000	
SRG-M-050-FD	4,000,000 ~ 5,000,000	
SRG-M-060-FD	5,000,000 ~ 6,000,000	
SRG-M-080-FD	6,000,000 ~ 8,000,000	

M-SRG® -BURNER FLAME CHART
OIL FIRING NATURAL & FORCED DRAFT

Section 1.1



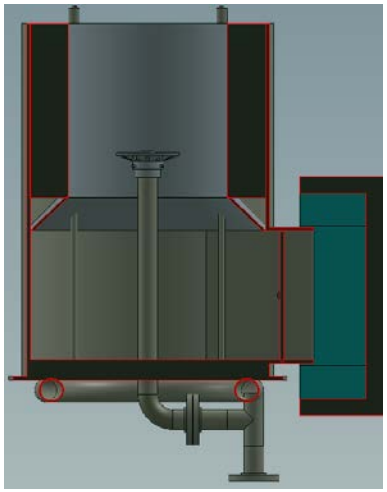
CONDITION
1.EXCESS AIR : 15%
2.FURNACE TEMPERATURE : 800°C
3.ATOMIZING STEAM : 0.35Kg / Kg of OIL
4.FURNACE PRESSURE : -6 ÷ -10 mmH_2O

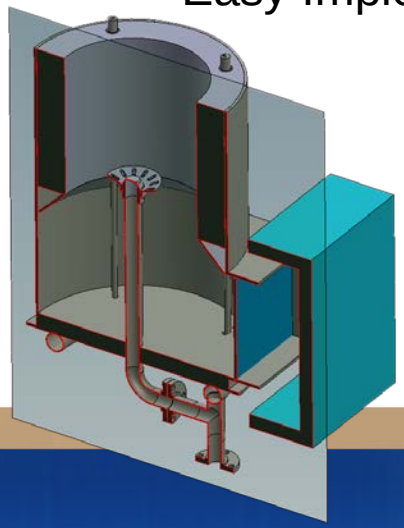
Cone-Mod Design (CMD)

Section 1.2

Advantageous of Cone-Mod Design (CMD):

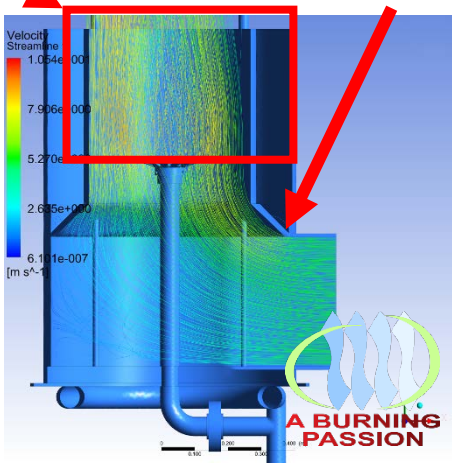
- More balanced and More Stable Flame
- Higher Combustion Efficiency
  - Controlled Flame Temperature / Heat Liberation
  - Lower Draft Loss
  - Lower Probability of Lifted Flame Phenomenon
- Lower Burner Noise
- Low Cost and Easy to Maintain
- Better Mechanical Structure Design
- Easy Implementation of the Mod on the Excising Burners





More Balanced
Air Distribution

Less Stagnation Area

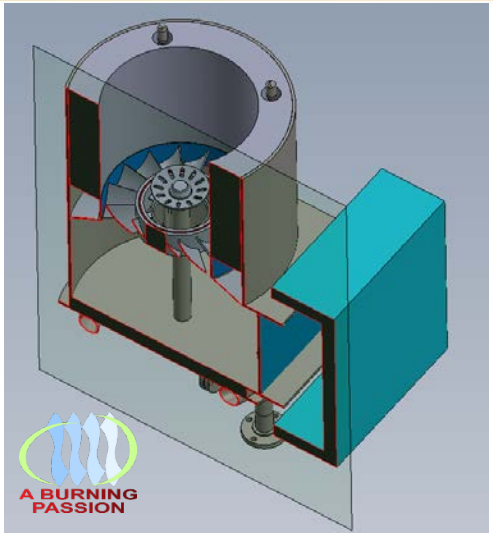


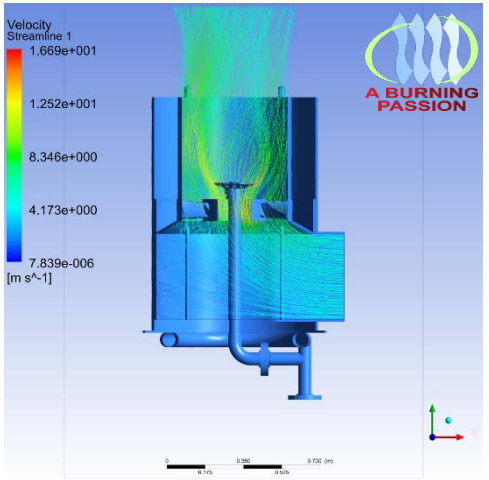
A BURNING PASSION

Swirl LoNOx Design (SLD)

Section 1.2

- **Advantageous of Swirl LoNOx Design (SLD):**
  - Significant Air Distribution Balance Improvement
  - Balanced and Straight Flame at Various Length
  - Significant Air and Gas Mixing Improvement
  - Uniform heat flux transfer
  - Lower NOx formation (Mechanism Integral to the design)
  - Adjustable for short flame length needs
  - Eliminate Steam injection requirement
  - High turndown capability
  - Various firing orientations
  - High Combustion Efficiency



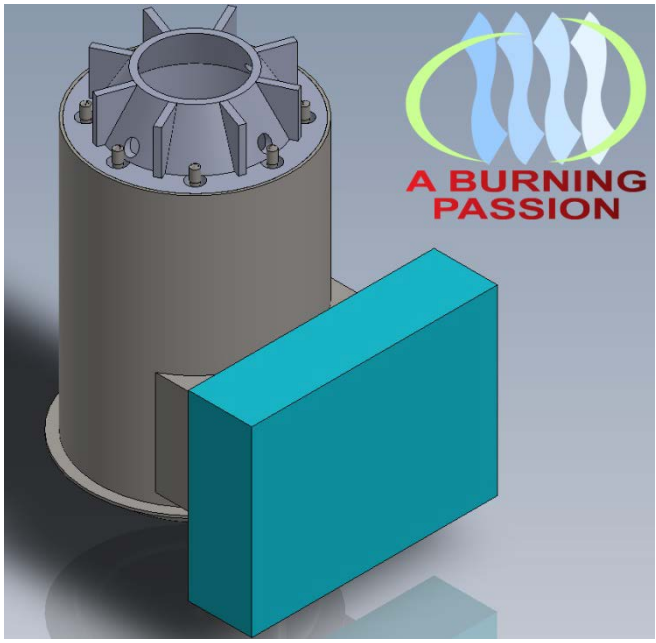


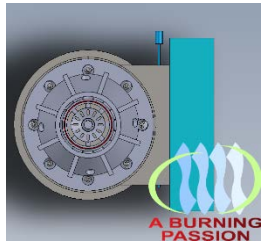
UltraLow NOx Design (SULND)

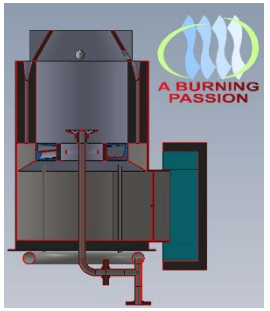
Section 1.2

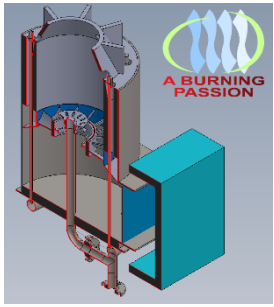
- **Advantageous of UltraLow NOx Design (SULND)**

- Even heat flux transfer
- Lowest NOx formation (Mechanism Integral to the design)
- Staged Combustion (Multi Stage / Multi Zone)
- Recirculation zones and Local O_2 Concentration Control Mechanism.
- Adjustable for short flame length needs.
- Eliminate Steam injection requirement.
- Higher turndown capability and Combustion Efficiency.
- More control over the flame temperature.
- More Uniform and Stable Flame.
- Forced-draft with possibility to add silencer in the air-intake.
- Substantial Air Distribution Balance.
- Balanced and Straight Flame at Various Length and Orientation.
- Significant Air and Gas Mixing Improvement.
- Adjustable for short flame length needs.
- Eliminate Steam injection requirement.





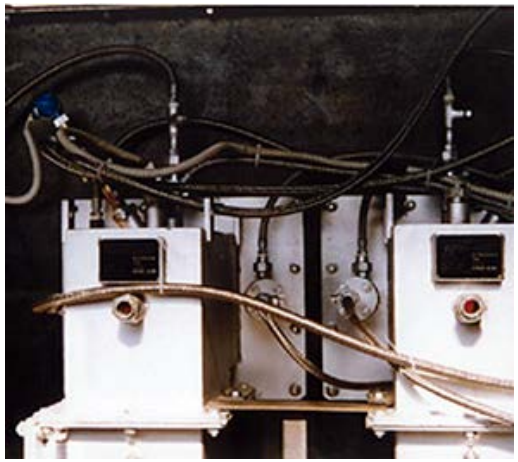




REGENERATIVE COMBUSTION

Section 1.2

Thanks to a Licence Agreement with the Japanese Nippon Furnace Kogyo Kaisha (NFK), covering sales and fabrication by **Samia®** of a Regenerative Combustion System called "HRS" (**H**igh cycle **R**egenerative combustion **S**ystem); such system, by mean of a Honeycomb type “Regenerator” (result of years of research and field applications, in conjunction with highly qualified Scientific and Governmental Japanese Boards) allows up to 45% Fuel Gas saving keeping NO_x emissions value far below current regulations.

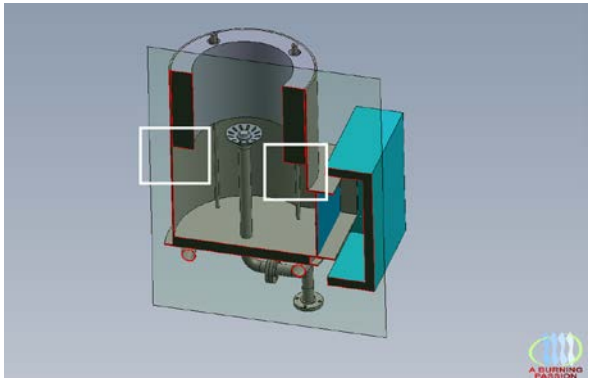


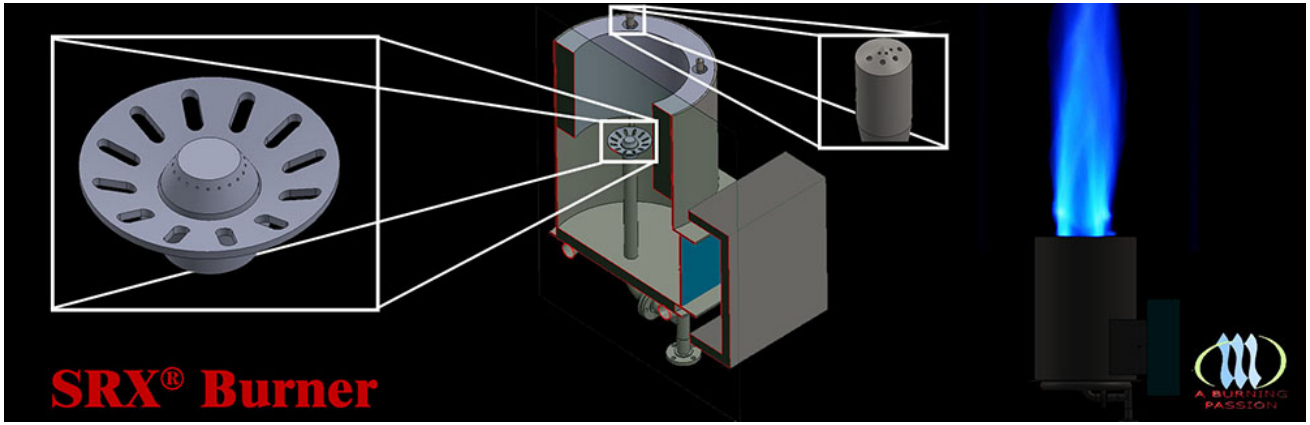
REFINERY BURNERS SERVICES

Section 1.3

Samia® Italia provides the following services:

- Surveys / Modification
- Feasibility Studies / Retrofitting
- Installation Supervision
- Revamping / Repairs / Upgrade
- Spares / Modification
- Start up





Section 2

FLARES
OVERVIEW

Name of Technology: Flare

This includes elevated flares, steam-assisted flares, air-assisted flares, non-assisted flares, sonic flares, enclosed ground flares and Burn Pit Horizontal Flares.

Type of Technology: Destruction by thermal oxidation.

Achievable Emission Limits / Reductions

A properly operated flare can achieve a destruction efficiency of 98 percent or greater when controlling emission streams with heat contents greater than 11 MJ/sm^3.

Typical Industrial Applications

Flares can be used to control almost any Gas Relief, and can typically handle large fluctuations in concentration, flow rate, heating value, and inert species content. Flaring is appropriate for continuous, batch, and variable flow vent stream applications, but the primary use is that of a safety device used to control a large volume of pollutant resulting from upset conditions. Flares find their primary application in the petroleum and petrochemical industries.

The majority of chemical plants and refineries have existing flare systems designed to relieve emergency process upsets that require the release of large volumes of gas.

These large diameter flares are designed to handle emergency releases, but can also be used to control vent streams from various process operations. Gases flared from refineries, petroleum production, and the chemical industry are composed largely of low molecular weight Gas Relief and have high heating values. Flares used to control waste gases from blast furnaces consist of inert species and carbon monoxide with a low heating value. Gases flared from coke ovens are intermediate in composition to the other two groups and have a moderate heating value.

Emission Stream Characteristics

Section 2

a. Air Flow: The flow rate through the flare is dependent upon the properties of the waste gas stream and the configuration of the flare. Steam, air, and pressure-assisted flares add flow to the waste stream in order to improve flame stability. In cases where the heating value of the waste gas is too low or too high, auxiliary fuel or additional air must be added to the flow, respectively. The maximum flow through commercially available flares is about 500 standard cubic meters per second (sm3/sec) and the minimum can approach zero flow.

b. Temperature: The discharge temperature is typically in the range of 500 to 1100°C (1000 to 2000°F), depending upon the composition of the waste gas flow.

c. Pollutant Loading: Depending upon the type of flare configuration (e.g., elevated or ground flares) and the source of the waste stream, the capacity of flares to treat waste gases can vary up to about 50,000 kilograms per hour (kg/hr) of hydrocarbon gases for ground flares and about 1 million kg/hr or more for elevated flares.

Flares are not subject to the safety concern of incinerators having a high concentration of organics in the waste gas. This is because flaring is an open combustion process and does not have an enclosed combustion chamber that can create an explosive environment.

d. Other Considerations: The waste gas stream must have a heating value of greater than 11 MJ/Sm3 (300 Btu/Sf3). If this minimum is not met by the waste gas, auxiliary fuel must be introduced in sufficient quantity to make up the difference.

Emission Stream Characteristics

Section 2

Emission Stream Pre-treatment Requirements

Liquids that may be in the vent stream gas or that may condense out in the collection header and transfer lines are removed by a knock-out drum. The knock-out is typically either a horizontal or vertical vessel located at or close to the base of the flare. Liquid in the vent stream can extinguish the flame or cause irregular combustion and smoking. In addition, flaring liquids can generate a spray of burning chemicals that could reach ground level and create a safety hazard.

Principle of Operation 1/2

Section 2

Flaring is a Gas Reliefs combustion control process in which the Gas Reliefs are piped to a remote, usually elevated, location and burned in an open flame in the open air, using a specially designed burner tip, auxiliary fuel and steam or air to promote mixing for nearly complete (> 98%) Gas Relief destruction. Completeness of combustion in a flare is governed by flame temperature, residence time in the combustion zone, turbulent mixing of the gas stream components to complete the oxidation reaction and available oxygen for free radical formation. Combustion is complete if all Gas Relief are converted to carbon dioxide and water. Incomplete combustion results in some of the Gas Reliefs being unaltered or converted to other organic compounds such as aldehydes or acids.

Principle of Operation 2/2

Flares are generally categorized in two ways:

(1) by the height of the flare tip (i.e., ground or elevated),
(2) by the method of enhancing mixing at the flare tip (i.e., steam-assisted, air-assisted or non-assisted).

Elevating the flare can prevent potentially dangerous conditions at ground level where the open flame (i.e., an ignition source) is located near a process unit. Elevating the flare also allows the products of combustion to be dispersed above working areas to reduce the effects of noise, heat, Smoke, and objectionable odours.
In most flares, combustion occurs by means of a diffusion flame. A diffusion flame is one in which air diffuses across the boundary of the fuel/combustion product stream toward the centre of the fuel flow, forming the envelope of a combustible gas mixture around a core of fuel gas. This mixture, on ignition, establishes a stable flame zone around the gas core above the burner tip. This inner gas core is heated by diffusion of hot combustion products from the flame zone.
Cracking can occur with the formation of small hot particles of carbon that give the flame its characteristic luminosity. If there is an oxygen deficiency and if the carbon particles are cooled to below their ignition temperature, smoking occurs. In large diffusion flames, combustion product vortices can form around burning portions of the gas and shut off the supply of oxygen. This localized instability causes flame flickering, which can be accompanied by soot formation. As in all combustion processes, an adequate air supply and good mixing are required to complete combustion and minimize smoke. The various flare designs differ primarily in their accomplishment of mixing.

Air-assisted flares

Some flares use forced air to provide the combustion air and the mixing required for smokeless operation. Combustion air is provided by a fan in the bottom of the cylinder. The amount of combustion air can be varied by varying the fan speed.

The principal advantage of air-assisted flares is that they can be used where steam is not available.

Although air assistance is not usually used on large flares (because it is generally not economical when the gas volume is large) the number of large air-assisted flares being built is increasing.

The non-assisted flare consists of a flare tip without any auxiliary provision for enhancing the mixing of air into its flame. Its use is limited to gas streams that have a low heat content and a low carbon/hydrogen ratio that burn readily without producing smoke. These streams require less air for complete combustion, have lower combustion temperatures that minimize cracking reactions, and are more resistant to cracking.

Sonic Flares

Sonic flares use the vent stream pressure to promote mixing at the burner tip. Several vendors now market proprietary, high pressure drop burner tip designs. If sufficient vent stream pressure is available, these flares can be applied to streams previously requiring steam or air assist for smokeless operation. They have multiple burner heads that are staged to operate based on the quantity of gas being released. The size, design, number, and group arrangement of the burner heads depend on the vent gas characteristics.

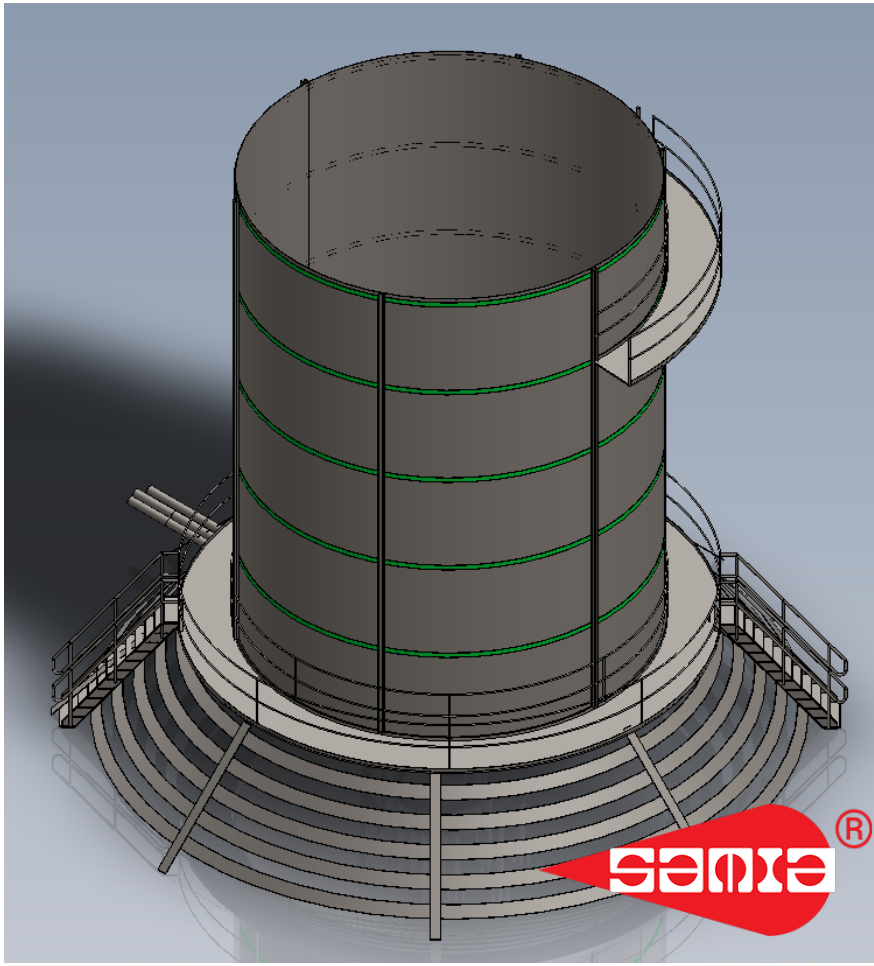
Steam-assisted flares

Steam-assisted flares are single burner tips, elevated above ground level for safety reasons, that burn the vented gas in a diffusion flame. They reportedly account for the majority of the flares installed and are the predominant flare type found in refineries and chemical plants. To ensure an adequate air supply and good mixing, this type of flare system injects steam into the combustion zone to promote turbulence for mixing and to induce air into the flame.

Ground Flares

An enclosed flare's burner heads are inside a shell that is internally insulated. The shell reduces noise, luminosity, and heat radiation and provides wind protection. Enclosed, or ground-based flares are generally used instead of elevated flares for aesthetic or safety reasons. A high nozzle pressure drop is usually adequate to provide the mixing necessary for smokeless operation and air or steam assistance is not required. In this context, enclosed flares can be considered a special class of sonic or non-assisted flares. The height must be adequate for creating enough draft to supply sufficient air for smokeless combustion and for dispersion of the thermal plume. These flares are always at ground level.

Enclosed flares generally have less capacity than open flares and are used to combust continuous, constant flow vent streams, although reliable and efficient operation can be attained over a wide range of design capacity. Stable combustion can be obtained with lower heat content vent gases than is possible with open flare designs (1.9 to 2.2 MJ/Sm^3), probably due to their isolation from wind effects.



Burn Pit Horizontal Flares

Sometimes erroneously called Ground Flares, this horizontal Flare Tips, are commonly used preferably in low manned areas were large amounts of liquids might be carried over through the Flare Tip itself into a pit adequately sized where these will deposit and, once reached combustible temperature, thank to flame heat of horizontal Flares, will be destroyed by combustion.

Advantages

Advantages of flares over other types of Gas Reliefs oxidizers.

1. Can be an economical way to dispose of sudden releases of large amounts of gas;
2. In many cases do not require auxiliary fuel to support combustion
3. Can be used to control intermittent or fluctuating waste streams.

Other Considerations

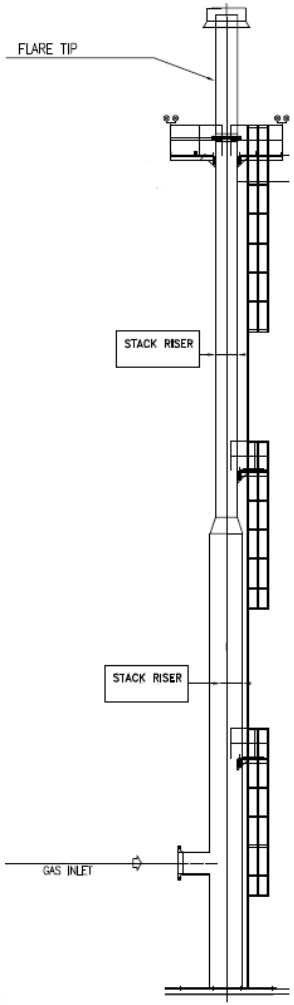
Flaring is considered as a control option and a safety measure when the heating value of the emission stream cannot be recovered because of uncertain or intermittent flow as in process upsets or emergencies.

Section 2.1

FLARE ASSEMBLIES

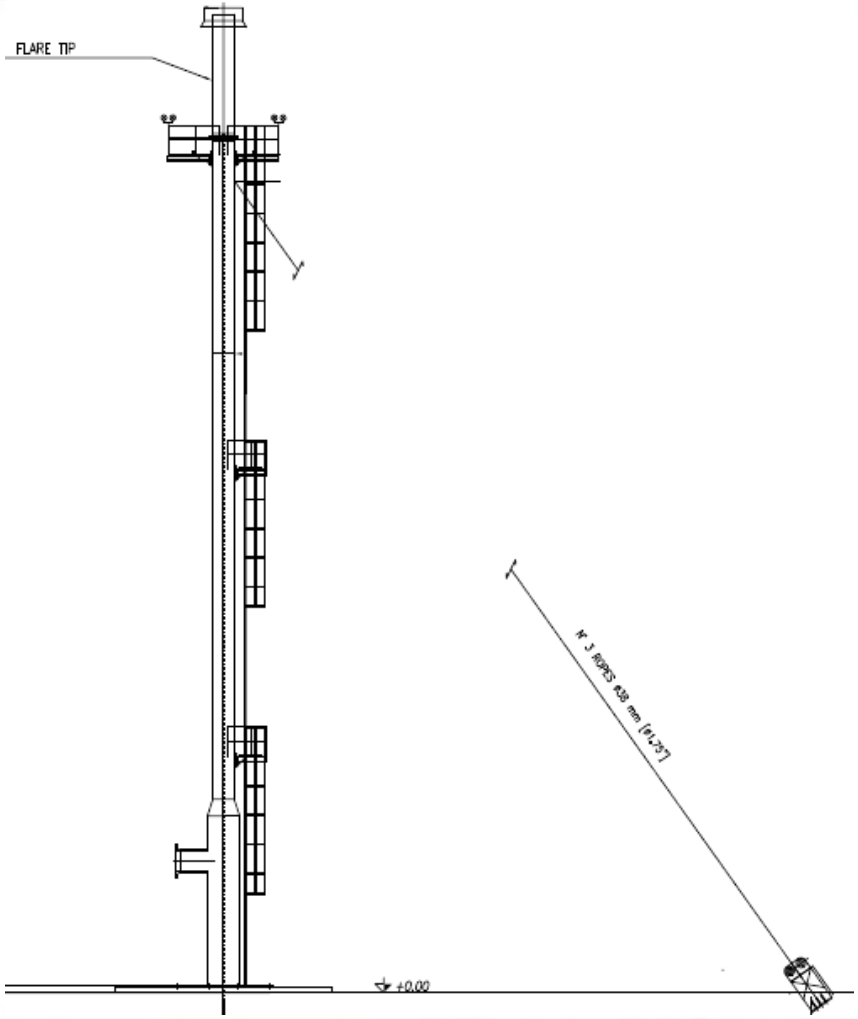
SELF-SUPPORTED FLARE

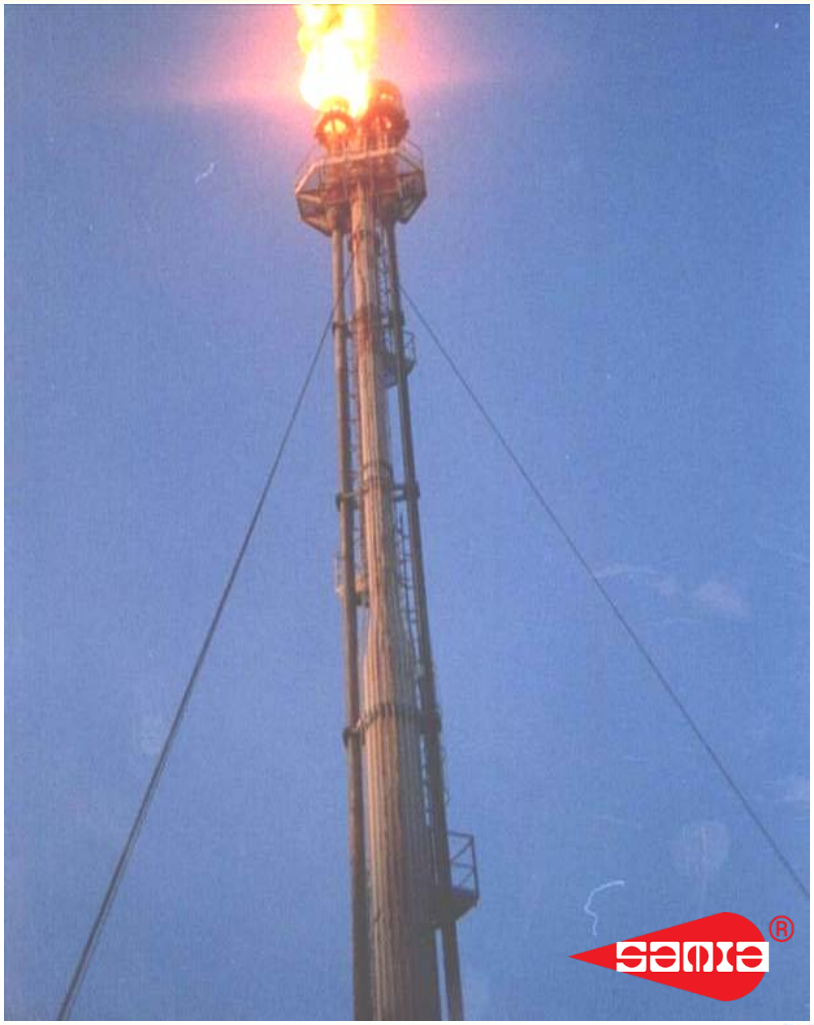
Section 2.1



GUY-WIRED - SUPPORTED FLARE

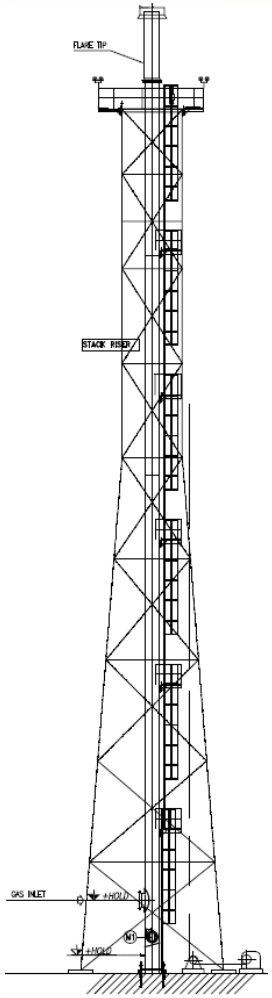
Section 2.1





DERRICK-SUPPORTED FLARE

Section 2.1



OFFSHORE FLARES

Section 2.1

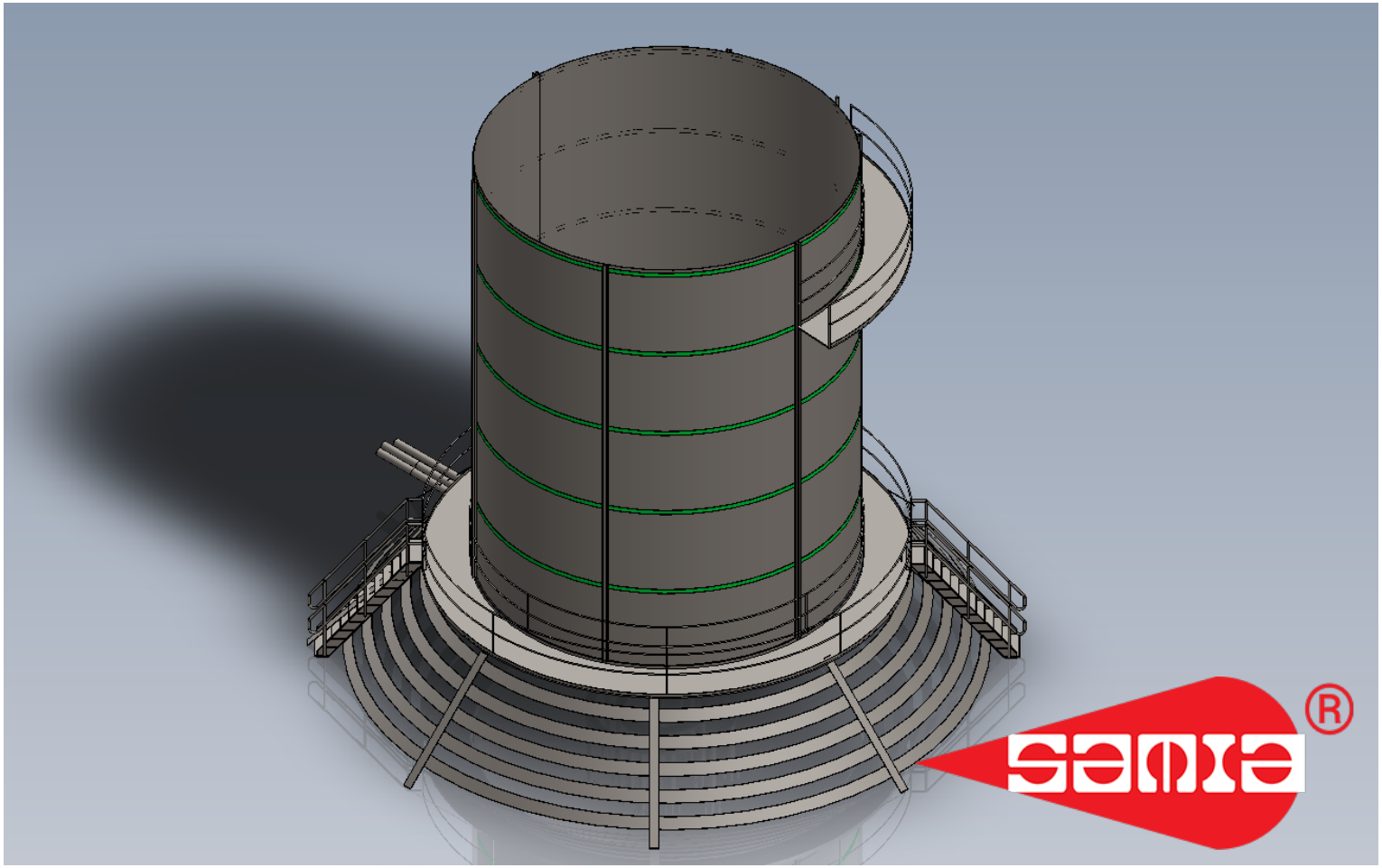
Offshore Multi-Points Flare Tip

MOBILE FLARE & KO DRUM

Section 2.1

SAMIA® Enclosed Ground Flare

Section 2.1

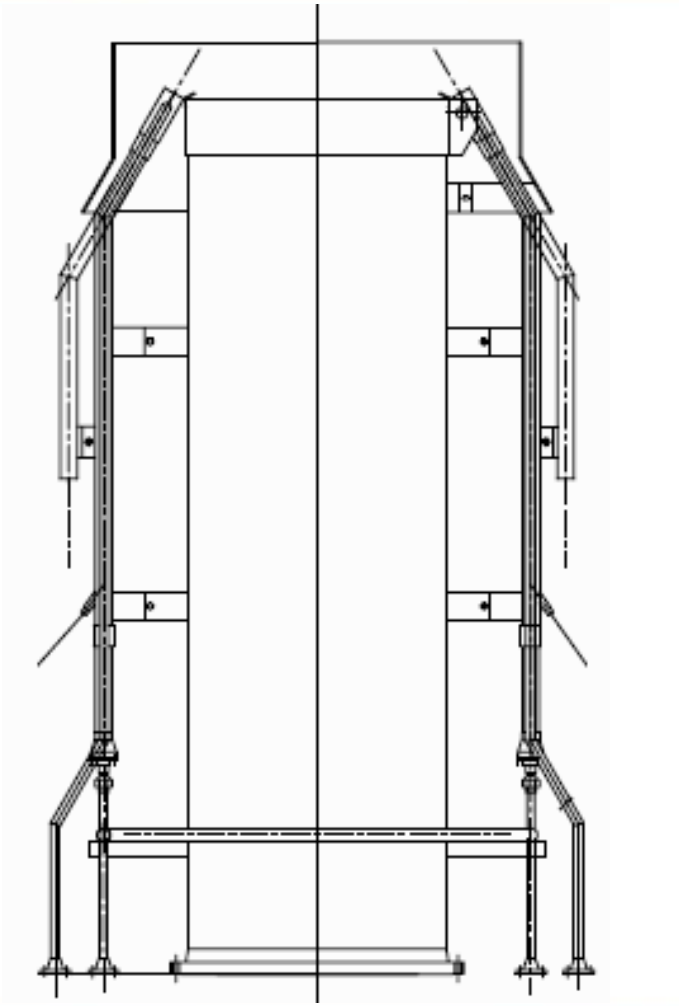


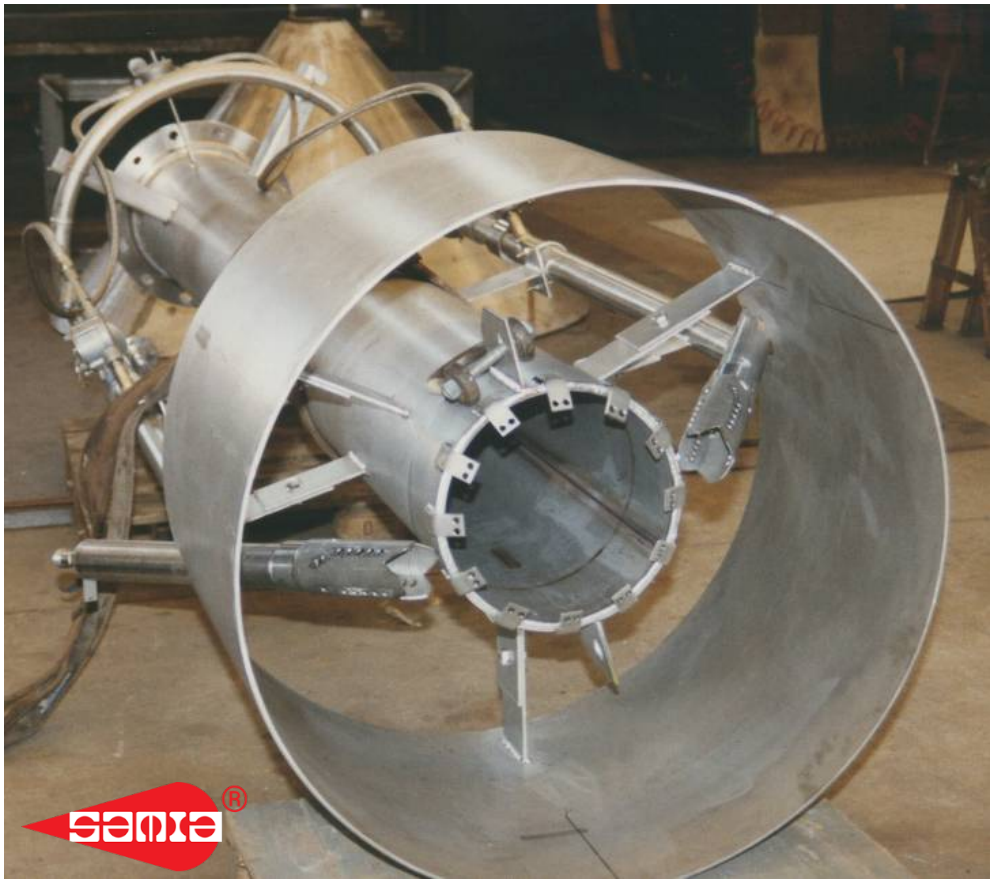
Section 2.2

FLARE TIPS

BARREL FLARE TIP

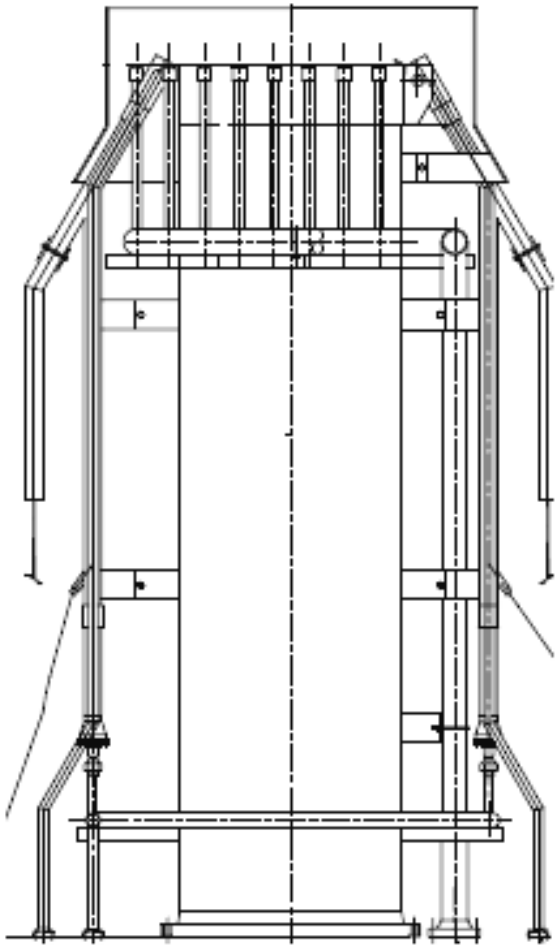
Section 2.2





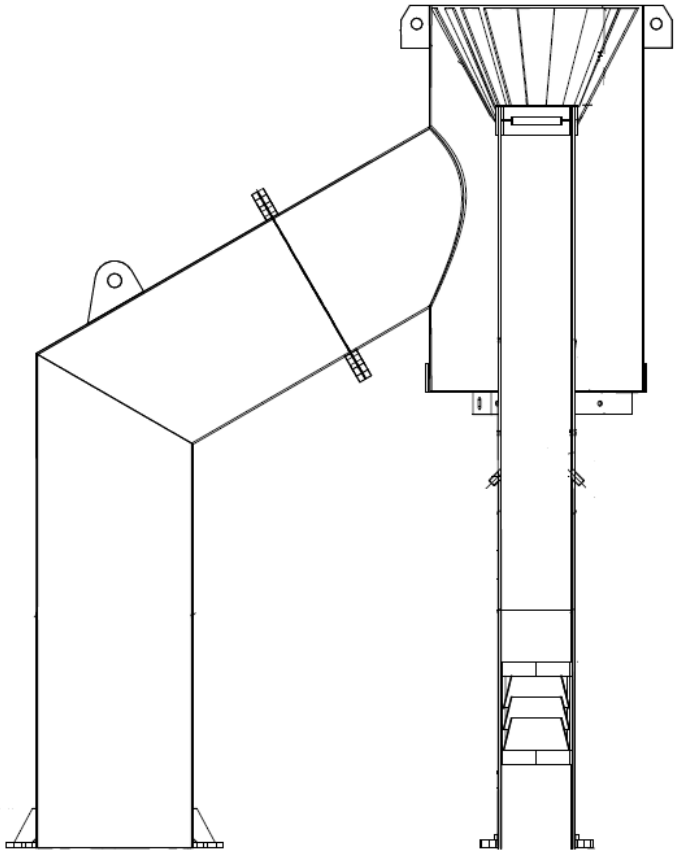
STEAM ASSISTED FLARE TIP

Section 2.2



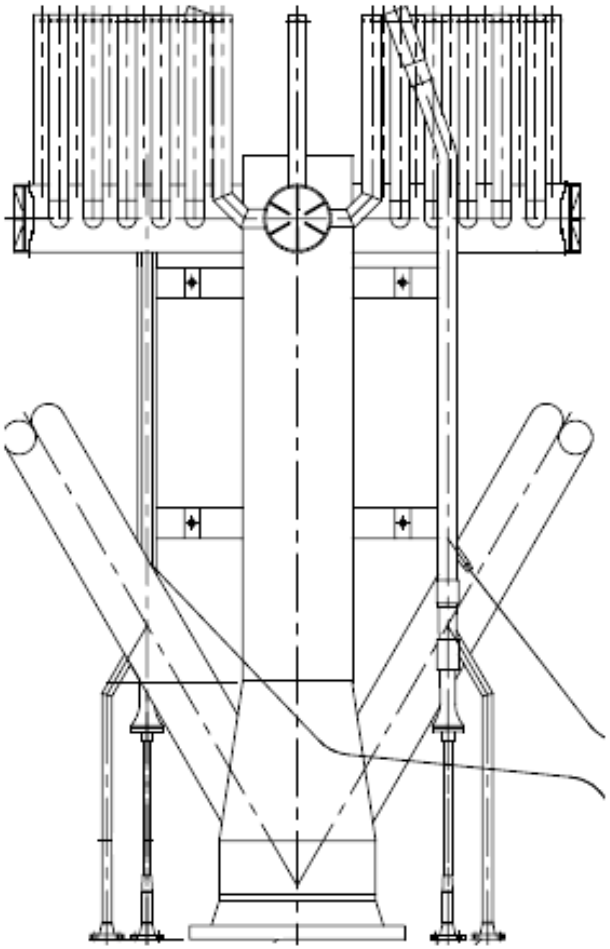
AIR - ASSISTED FLARE TIP

Section 2.2



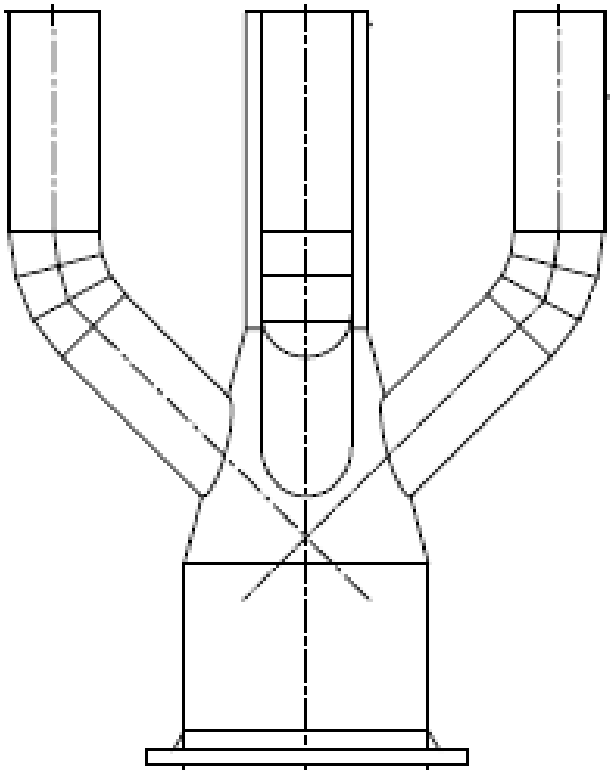
SONIC / MULTI POINTS FLARE TIP

Section 2.2



SONIC / MULTIARMS FLARE TIP

Section 2.2



Section 2.3

FLARE SEALS

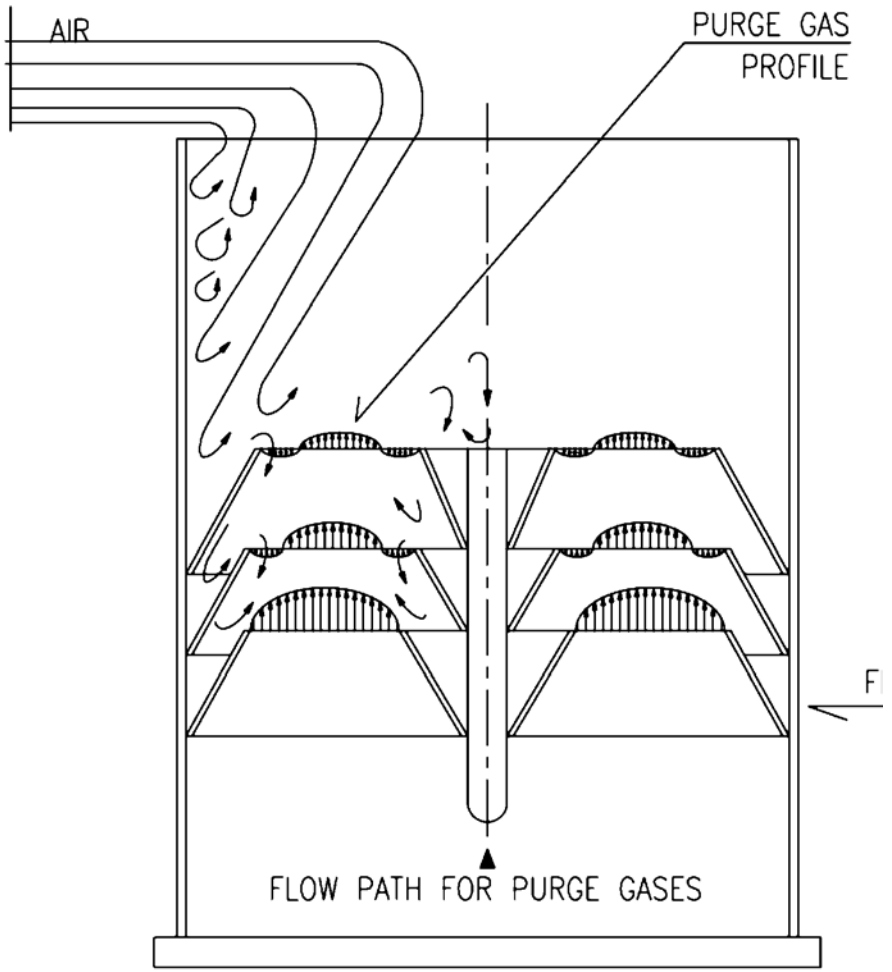
SAMIA® DIODE PINECONE

Section 2.3

The pinecone, also called velocity seal or dynamic seal, is an equipment designed and tested by SAMIA® in the course of its long experience in the field of flares. Located integrally at the base of the flare tip, the purpose of the pinecone is to avoid air infiltration into the flare system.

The principle of the pinecone is to trap air as it enters the flare tip, reverse its direction, and carry it out of the tip with accelerated purge gas. See below figure.

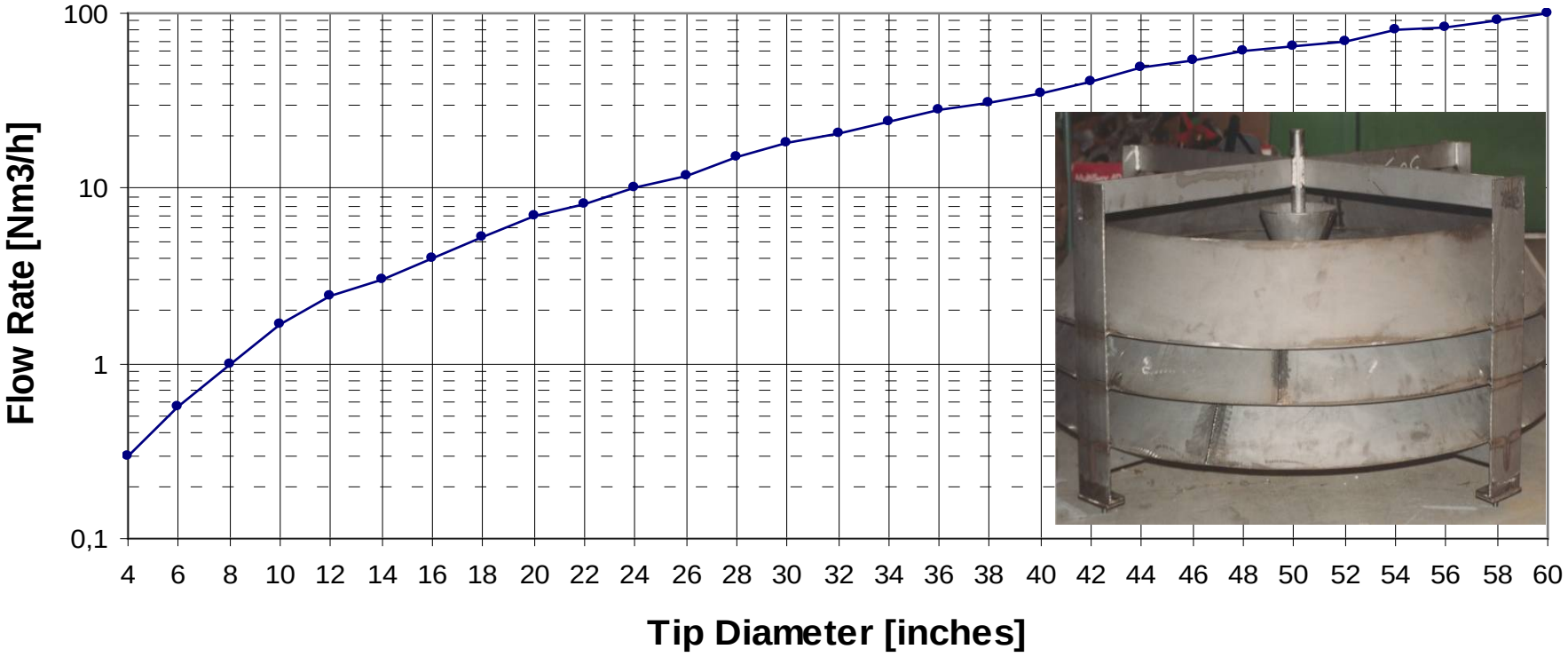
It is built with conical spoilers in order to intercept the incoming air and turn it back towards the tip exit. At the same time, the shape of the spoilers acts to accelerate the purge gas which, mixing with outflowing air at the exit of the seal device, flows out the tip. The quantity of purge gas required is dependent on the size and design of the flare and the composition of the purge gas.



SAMIA® DIODE PINECONE

Section 2.3

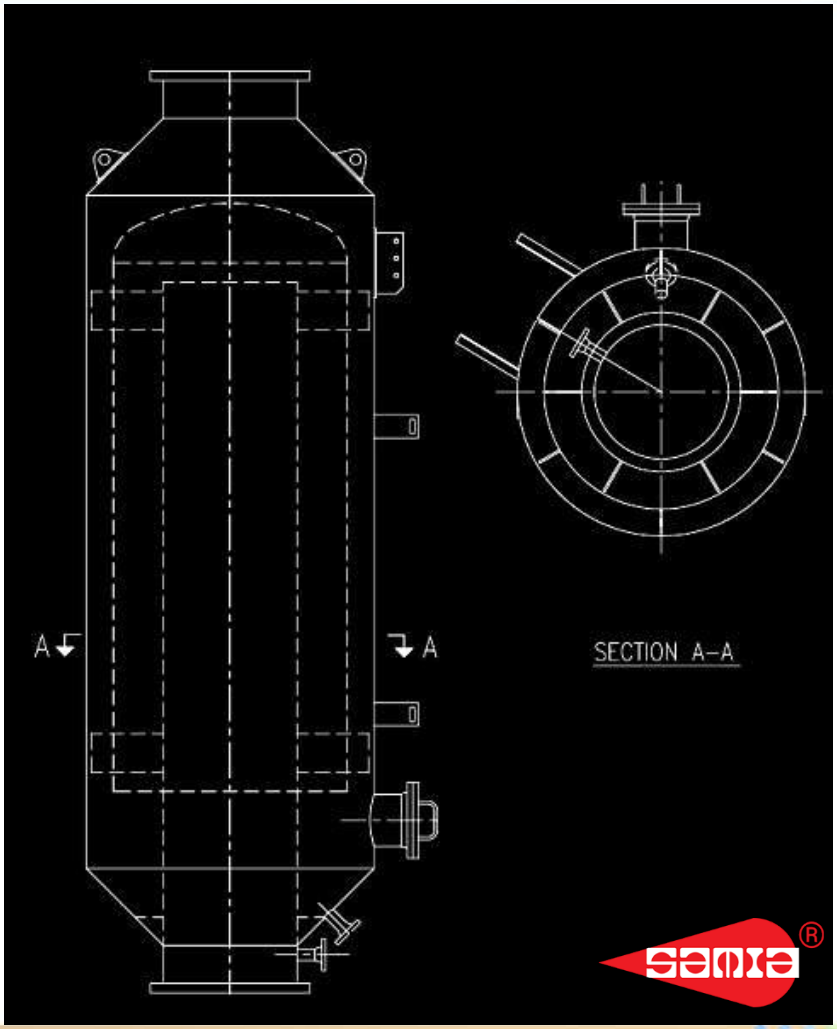
The purge gas required by our pinecone shown in below diagram is valid for a range of all common hydrocarbon purge gas MW



MOLECULAR SEAL

Section 2.3

Molecular seals are installed to reduce the purge gas flow. The seal is mounted between flare tip assembly and flare riser and it has got a labyrinth design which improves its sealing effect. The operating principle considers the density difference between the purge gas and air, obtaining a gas rich zone within the molecular seal thus avoiding air entrainment. Typical design is shown beside. It must be said that on large diameter flares, compared to compact design of Pinecone, the bulky Molecular Seal will have a sensible price impact on the overall flare price.



FLARES SERVICES

Section 2.4

Samia® Italia provides the following services:

- SURVEYS and INSPECTIONS
- Flares Aerial Inspection (Helicopter or by Drones)
- Feasibility Studies
- Erection Supervision
- REVAMPING / REPAIRS / UPGRADE / MODIFICATIONS
- SPARE PARTS
- START UP SUPPORT
- TRAINING COURSES
- ENVIRONMENTAL ANALYSIS AND POLLUTION DISPERSION MODELLING

Section 3

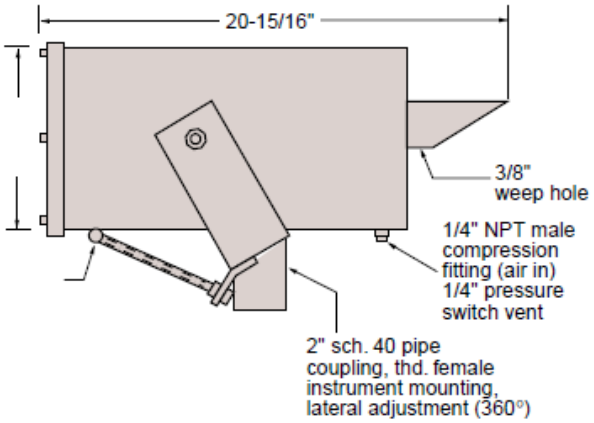
Accesories

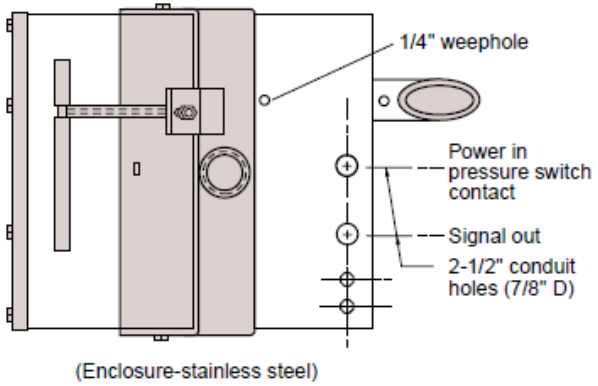
- SAMIA ITALIA, design and offer accessories and auxiliary equipment for Flare System and Burners including:
  - Valves, Hoses, Pilots, Ignition Systems, Fittings, Flanges
  - Air-Blowers, CO_2 System, Nitrogen System and LPG System.
  - Storage Tanks
  - Vessels (K.O. Drums and Water Seals (Liquid Seal), Pressure Vessels)
  - Seals and Prefabricated Piping.
  - Monitoring System (UV and IR system or combined system)

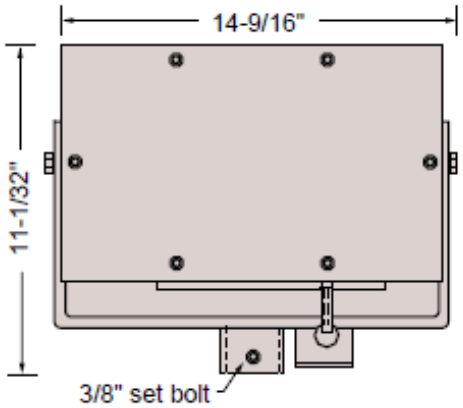



POWERTROL PILOT/STEAM MONITOR

Section 3

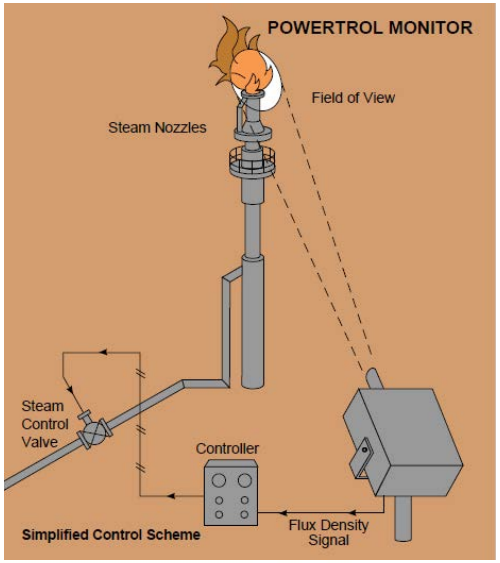


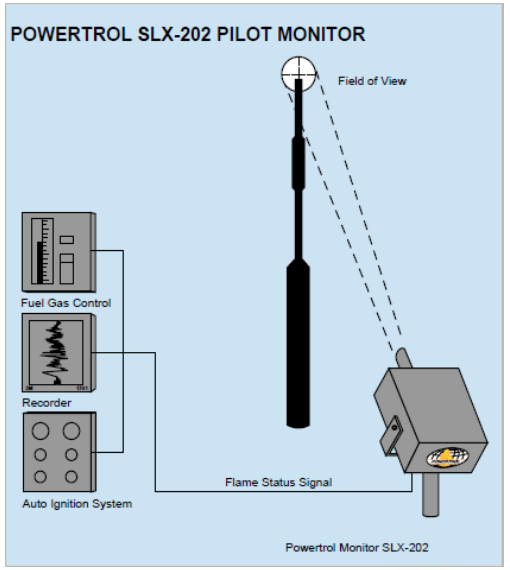




SPECIFICATIONS

DISTANCE: 500 to 3,000 feet
FIELD OF VIEW: 0.7° (with standard optics)
FLARE SIGHTING: Thru the lens, adjustable focus
RANGE: 0-100% Flux Density
RESPONSE TIME: 0.1 second to 95% of final value
OUTPUT: 4-20 MA. DC. Isolated/Non-Isolated
AODR: 0.1 to 120 seconds
INPUT POWER: 110/220 VAC, 50-60 HZ, 150W
PURGE AIR: 2 PSIG, 1 CFM consumption
PRESSURE SWITCH: 120-480 VOLTS, 60 HZ AC.
TEMPERATURE RANGE: -30°F TO 120°F
(optional enclosure heating/cooling available)





CERTIFICATION

ZERTIFIKAT ◆ CERTIFICATE ◆ 認證證書 ◆ СЕРТИФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT

TÜV SÜD Italia

CERTIFICATO

Nr. 50 100 13457 - Rev.001

Si attesta che / This is to certify that

IL SISTEMA QUALITÀ DI
THE QUALITY SYSTEM OF

SAMIA ITALIA S.r.l.

SEDE LEGALE:
REGISTERED OFFICE:

VIALE PIAVE 35
IT - 20129 MILANO (MI)

SEDE OPERATIVA:
OPERATIONAL SITE:

VIA BERGAMO 39
IT - 23807 MERATE (LC)

È CONFORME AI REQUISITI DELLA NORMA
HAS BEEN FOUND TO COMPLY WITH THE REQUIREMENTS OF

UNI EN ISO 9001:2015

QUESTO CERTIFICATO È VALIDO PER IL SEGUENTE CAMPO DI APPLICAZIONE
THIS CERTIFICATE IS VALID FOR THE FOLLOWING SCOPE

Progettazione e gestione della fabbricazione di fiaccole, bruciatori, apparecchiature di combustione e relativi accessori per l'industria estrattiva, petrolchimica ed energetica (IAF 18, 34)

Design and project management of flare systems, burners, combustion equipment and relevant accessories for oil & gas, petrochemical and energy sectors (IAF 18, 34)

ACCREDIA
L'ENTE ITALIANO DI ACCREDITAMENTO
SGQ N° 049A

Per l'Organismo di Certificazione
For the Certification Body
TÜV Italia S.r.l.

Validità / *Validity*
Dal / From: 2018-06-01
Al / To: 2019-04-25

Data emissione / *Printing Date*
2018-06-01

Andrea Coscia
Direttore Divisione Business Assurance

PRIMA CERTIFICAZIONE / *FIRST CERTIFICATION:* 2016-04-26

"LA VALIDITÀ DEL PRESENTE CERTIFICATO È SUBORDINATA A SORVEGLIANZA PERIODICA A 12 MESI E AL RIESAME COMPLETO DEL SISTEMA DI GESTIONE AZIENDALE CON PERIODICITÀ TRIENNALE"

"THE VALIDITY OF THE PRESENT CERTIFICATE DEPENDS ON THE ANNUAL SURVEILLANCE EVERY 12 MONTHS AND ON THE COMPLETE REVIEW OF COMPANY'S MANAGEMENT SYSTEM AFTER THREE-YEARS"

TÜV Italia S.r.l. • Gruppo TÜV SÜD • Via Carducci 125, Pal. 23 • 20099 Sesto San Giovanni (MI) • Italia • www.tuv.it TÜV®

COPY OF CERTIFICATE AVAILABLE UPON WRITTEN REQUEST

A BURNING PASSION

Samia® Italia Srl