



Saipa Expansion Engineering Co.

RFQ


For an Oxidizing System

T.A.R Oxidizer

TEG1402/3001-22



Date: March 2024

ORDER NO.: TEG1402/3001-22 DATE: March, 2024	<h1>RFQ</h1> <h2>For an Oxidizing System (T.A.R)</h2>	 SEECO <hr style="width: 50%; margin: 0 auto;"/> <i>Saipa Expansion Engineering Co.</i>
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Saipa Expansion Engineering Company (SEECO) is one of the companies of Saipa Automotive Group which operates in field of vehicle Painting lines, intends to entrust the purchase of an oxidizer to eligible supplier through public tender.

For this purpose, while studying the technical specification, please make a technical and commercial proposal in this regard.

Oxidizer System Description:

The Oxidizer System (T.A.R) should be designed for application in areas in which both the installation area and the inside of the connection pipe (air to be treated) as safe in accordance with CEI 31-30 and CEI 31 standards-35 (ATEX). All the training, maintenance, troubleshooting and etc. should be provided.

Process of Oxidizer System

The Oxidizer System is the source of energy that the top coat oven need to curing body. Operational top coat oven system, as indicated in the flow diagram is that Air contamination with volatile organic compounds is injected to oxidizer through a special exhaust fan that has a static pressure 10,000 Pascal's. Solvent laden air then is burnt by the burner and hot air transfer by channel to heat exchanger of the oven. Hot air channel of the oxidizer by the damper installed for this purpose for each exchangers, direct certain amount of hot air into the bundle pipes of heat exchanger. And then the air of the oven that is circulated cross the bundle pipes of exchanger making hot. The hot air that passes through the bundle pipe is return to channel of oxidizer and then enter to the next exchanger same as first and finally hot air that is cool till 200°C exhaust to the atmosphere.

Flow diagram of top coat oven is as follow:

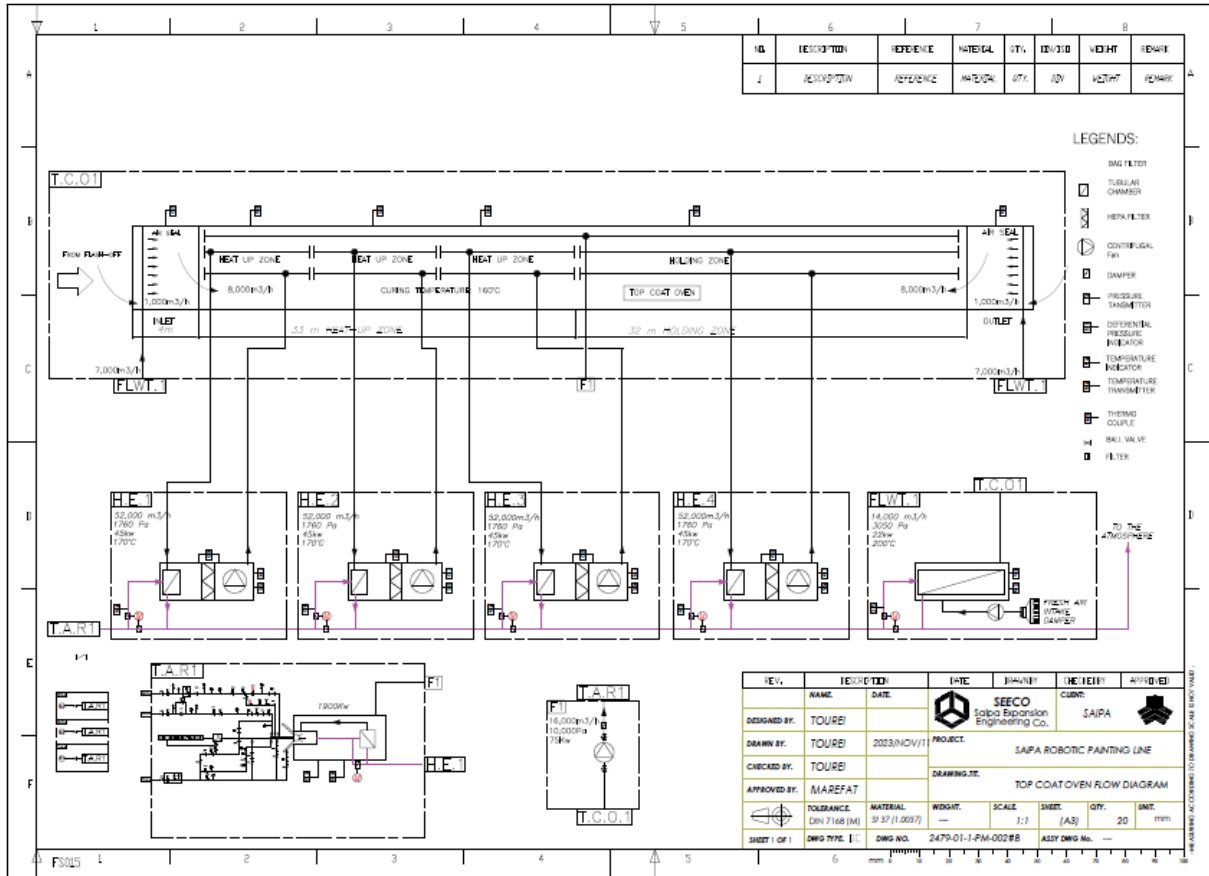
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Approximate Dimensions of Oxidizer:

Description	Unit	Qty.
Diameter	mm	3,040
Length	mm	7,200
Weight approx.	kg	12,500

POST THERMAL COMBUSTOR:

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Description	Unit	Qty.
Quantity	pcs	1
Air flow rate to be treated	m ³ /h	Approx. 19,500 at 150 °C
Air flow rate to be treated	kg/h	Approx. 16,000 – 17,000
Temperature in the combustion chamber	°C	Approx. 700 – 800
Inlet temperature	°C	Approx. 140 – 160
Outlet temperature	°C	Approx. 380 – 400
Residence time in the combustion chamber	at 700 – 800 °C	Approx. 0.5 – 0.7 seconds
Residence time in the counter-chamber	at 700 – 800 °C	Approx. 0.15 – 0.25 seconds
Total residence time	at 700 – 800 °C	Approx. 0.75 – 0.85 seconds
Pressure drops of fumes to be treated	35 mbar	3,500 Pa
Thermal insulation	Kg/m ³	100
	mm	300
External cladding		galvanized sheet metal


BURNER

The burners should be dual (Gas and Oil) and should be designed to mix fuel with air and burn the resulting mixture. All fuel burning devices should produce explosions and fires when improperly applied, installed, adjusted, controlled, or maintained.

Protection from the elements, all maintenance and troubleshooting on burners should be provided.

Burner should be designed primarily for mounting in exhaust ducts where all of the combustion air flows through and by the burner.

Burner Application

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Burner should provide clean combustion throughout a fuel turndown range of 20:1. (Depending on the gas gun selection) and well suited to applications requiring a clean, high destruction rate of volatile organic compounds, smoke and odors.

The standard of pollutions of air that should be tested and delivery of oxidizer in accordance with the following standards:

Source Pollutant	Unit of Measurement	Spread Permissible Limit
Particles	mg/Nm ³	100
So ₂	mg/Nm ³	1400
NO _x	mg/Nm ³	800
Co	mg/Nm ³	700

Flame monitoring

Flame monitoring must be provided by a ultra-violet scanner; (generally a self-check scanner as incinerators operates continuously). Flame rod monitoring is not acceptable.

Flame sensing equipment should be approved by international standards.

The valve train should be supplied by supplier.

The connection piping and all vent piping such as pressure regulator vent, etc. will be supplied by SEECO.

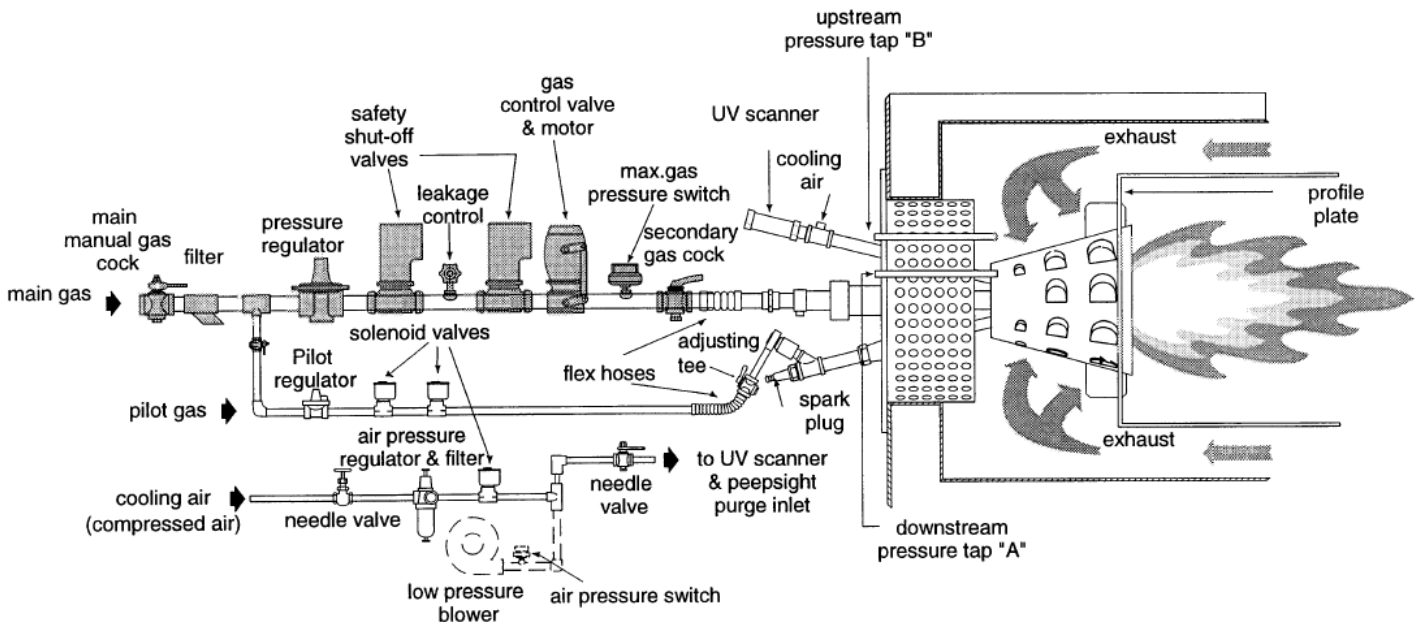
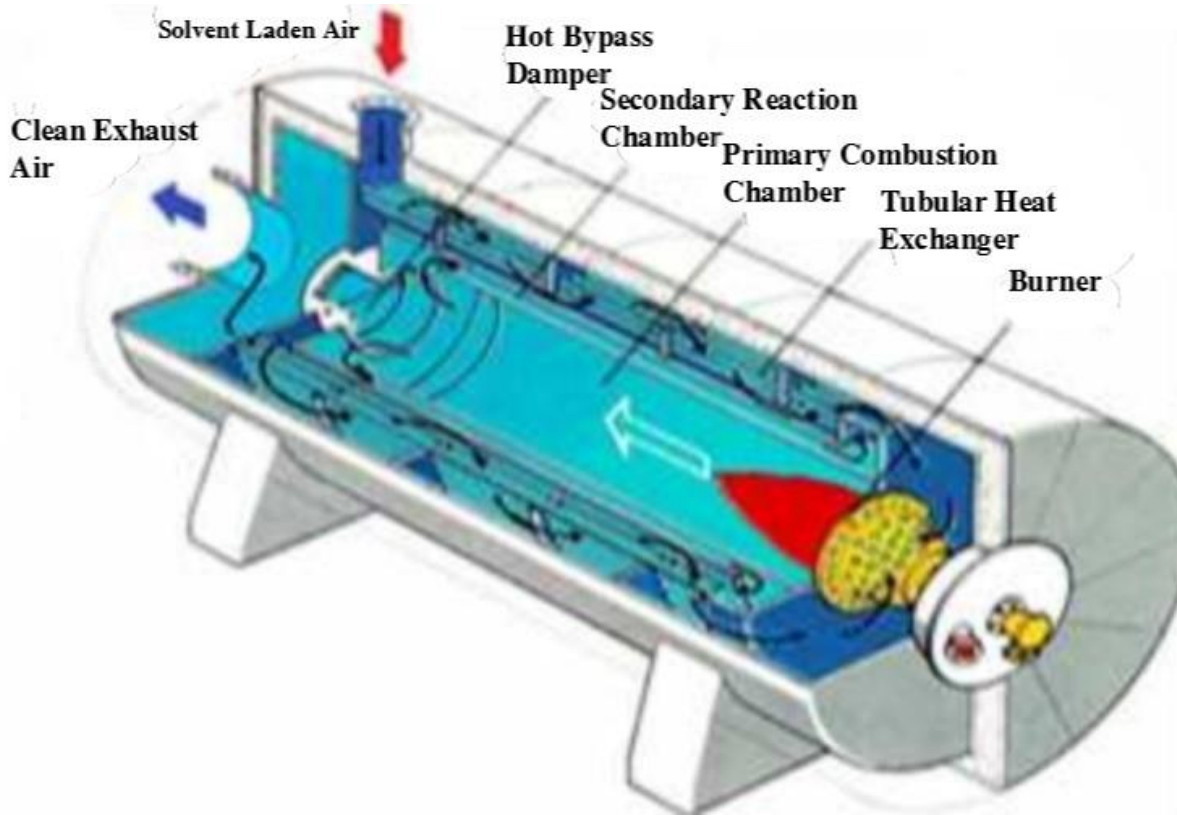
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Burner should consist of pilot, spark plug, UV cell connection, flame diffusion cone and etc. and below technical data specification.

Description	Unit	Qty.
Type		ECLIPSE IC
Quantity	pcs	1
Smoke pressure drop on the burner		35 mm. AC max
Flow rate fumes with O ₂ >18% Vol.	Nm ³ / h	Max/min 19,000
Start-up flow rate (false air)	Nm ³ / h	16,000
Capacity	KW	Max/min approx. 1,900 / 150
Fuel		Methane gas at 200 mbar or oil at 6 bar
Electrical voltage		400 V / 50Hz 3ph
		Auxiliaries 110 V / 50 Hz
Equipment execution protection degree	(active parts)	IP 54
	(insulated parts)	IP 44
Implementation standards		EN 746 - 2
		CEI EN 60079-10
		CEI EN 60079 -14

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Gas train / Oil train

Gas train should assemble according to EN 746-2 standards with electrical wiring to the panel consisting of consist below technical data specification.

Description	Unit	Qty.
Tap	pcs	1
Joint	pcs	1
Pressure stabilizer	Spring 40-100 mB	1
Main gas solenoid valves	pcs	2
Pressure taps	Set	1
Inlet pressure gauge with tap	pcs	1
Pressure switches for max/min gas	KS type DWG 150 U	2
Pilot gas solenoid valve	pcs	1
Flex pipes for pilot and main	I=600 mm	2

Flame Protection Control

Flame protection control should be non-continuously self-checking with U.V. cell. Type RM 7850 + C 7027 A and for oil system TTG714 should be provided to change the gas to oil. Also, the necessary oil regulator, control valves, pump, (i.e., solenoid valve, ball valve, gas nozzle-jiglourt (JJ744)) should be provided.


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Expansion Joint:

Flexible joint should consist of MFA & MRU EXPANSION JOINTS with below technical data specification.

Description	Unit	Qty.
Expansion Joint MFA DN800	mm	Length 250
	mm	Length 350
	mm	Length 1,165
	mm	Length 1,370
Expansion Joint MFA DN400	mm	Length 650
Expansion Joint MRU 800x400	mm	Length 150
Flange + pipe		Ring welded to pipe (not angular profile)
Standards		CE Marking Module H - European Pressure Equipment Directive 2014/68/EU
		Bellows design code EJMA
		ASME VIII Div.1 standard production
		Material certificates according to EN 10204-3.1
		VT-Visual inspection of welds acc. to ASME V
		Dimensional control
		LT-Pneumatic leak detection test




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ELECTRICAL PANEL:

The Electrical Panel should be designed for System Control and Protection with CE standards for both gas and oil systems.

Description	TDS	Brand	Qty.
Blind door metal cabinet	RAL7035	BLIZZARD Pro Legrand series	1
QE Internal lighting unit	LED lamp and control microswitch		1
Main disconnect switch		Schneider	1
Auxiliary circuit	with 24Vdc mini relay	OMRON	1
Burner control and safety logic circuit			1
Mushroom-head button Emergency safety electronic module	diam.40	Schneider XPS series safety electronic module	1
Buttons in door	diam.22	Schneider ZB4 series	1
Selectors in door	diam.22	Schneider ZB4 series	1
Indicator lights in door	diam.22	Schneider ZB4 series	1
Supply for powering auxiliaries and sensors	24Vdc 5 A direct current power		1
Retransmission for temperature control in the combustion chamber	with 4-20mA retransmission	Gefran 1250 series thermoregulator	1
Control the afterburner exit temperature	with 4-20mA retransmission	Gefran 1250 series thermoregulator	1
45x45 digital safety thermostats for high post burner temperature control in the chamber	at the outlet		2

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Automatic Bypass Damper:

The system in order to control temperature of supply air in oxidizer need to damper for mixing air inlet the oxidizer. This element should be provided to oxidizer.

Guaranty & Warranty:

The supplied oxidizer should have been 12 months quality guaranty after delivery, and any damage caused by transport, inappropriate and incorrect quality is the responsibility of the supplier, and supplier should be repaired it during guaranty period. Also 10 years after sales warranty services is in responsibility of supplier.

Commissioning:

In order to commissioning, arrangement and setting of oxidizer, supplier should be coordinating the arrival mechanical and electrical personnel.


Documentation & Trainings:

Supplier should be provided the technical document necessary to install, erect, operate and maintenance of the oxidizer after delivery as follow:

- Maintenance manual
- Technical datasheets
- Operation manual for burner, oxidizer and control panel
- Schemes and diagram for gas & oil and electrical panel

Spare part:

Supplier should be delivered a list of part that it need for maintaining oxidizer.

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Price List:

<u>Item</u>	<u>Description</u>	<u>Specification/Brand</u>	<u>QTY</u>	<u>Unit price</u>
1	Approved of top coat Flow diagram with 20 body per hour	Attached of contract	<u>1</u>	
2	Design of Oxidizer according to specification with Burner, Gas & Oil Train and Air Equipment With all training, Supervision, Erection etc.	Burner brand: ECLIPSE CO. Customer Propose Capacity Of Oxidizer :1900 KW Brand : Confirm by Customer	<u>1</u>	
3	Control Panel	According to the list	<u>1</u>	
4	Expansion Joint	AISI 316 DN 800&DN400 According to the list	<u>11</u>	
<u>Total price:</u>				

Important Notes

- Design of oxidizer according to specification is responsible of supplier. If there is something change to technical specifications, the supplier should be make change it by obtaining approval from the customer.
- The flow diagram of the top coat oven is attached to contract. The supplier is obligated to review and, if necessary, make changes in flow diagram by obtaining approval from the customer. Finally, the flow diagram should be approved by the supplier and future responsibility will be his responsibility.
- The capacity of 1900 KW of oxidizer is according to the initial considering and proposed by customer, so the supplier should be check, if necessary, and with the approval of the customer, changing the capacity of the oxidizer. Obviously, the capacity and design of the oxidizer is the responsibility and cost of the supplier. Sample of installed oxidizer of ovens with same capacity is exist in SAIPA - Tehran that supplier can visited if request.
- Customer is free to remove one or more item from the supplier price list of his own discretion.
- Finally, the capacity of the oven would be 20 body/hours (body + skid weight per unit equal to 700 kg) should be approved by the Customer.