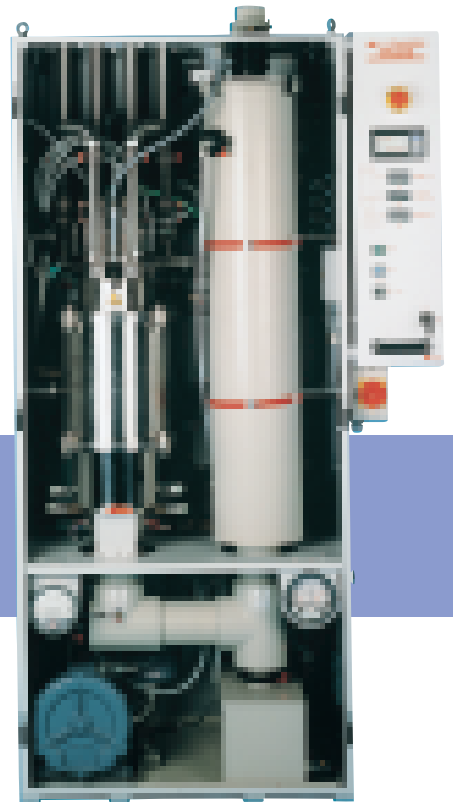




PRODUCT DATA

Thermal Processing Unit



BOC Edwards' second generation Thermal Processing Unit (TPU), the industry standard abatement system for CVD.

One model suitable for all CVD and many etch applications. Each inlet can be field configured for high level abatement of all PFC gases, F_2 or ClF_3 . Total input flows up to 200 slpm.

Benefits

- Lowest cost of ownership
- Unrivalled abatement performance
 - Independently verified
 - Only system capable of high CF_4 abatement
 - Capable of treating high flows of ClF_3
- Robust field performance
- Excellent powder handling capabilities
- Certified to SEMI S2-93

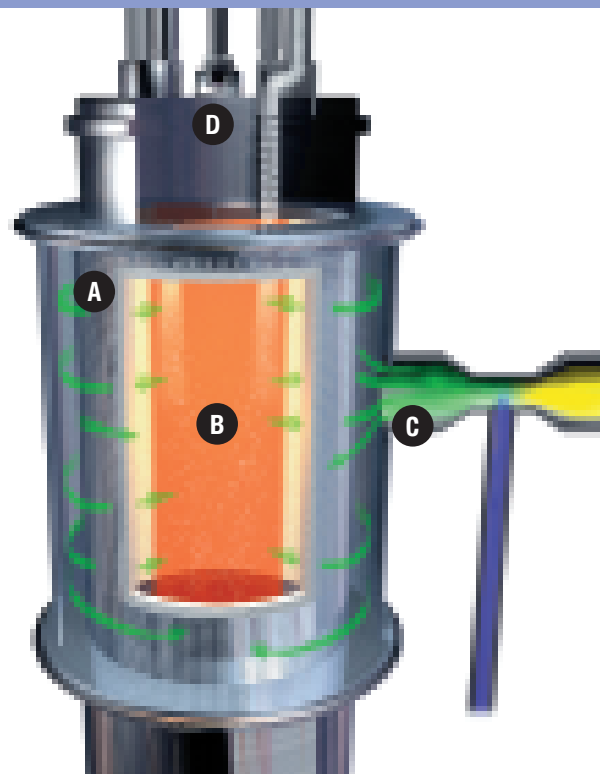


BENEFITS

POWDER MANAGEMENT IS THE KEY TO RELIABILITY

The unique inward fired radiant combustor design ensures oxidation of silane/TEOS occurs in the middle of the combustion zone. The inward fuel/air mixture flow keeps the reaction zone away from the walls into a laminar zone in the middle, resulting in silica powder from oxidation passing down into the water scrubber below.

- A** AIR/METHANE MIXTURE INPUT VIA ANNULUS. COOL OUTER WALL.
- B** FLAMELESS COMBUSTION IN INNER TUBE.
- C** INWARD FLOW KEEPS ZONE NEXT TO CERAMIC CLEAR OF PROCESS GAS, SO NO SOLID BUILD-UP ON CERAMIC.
- D** INDEPENDENT PROCESS GAS INPUTS.

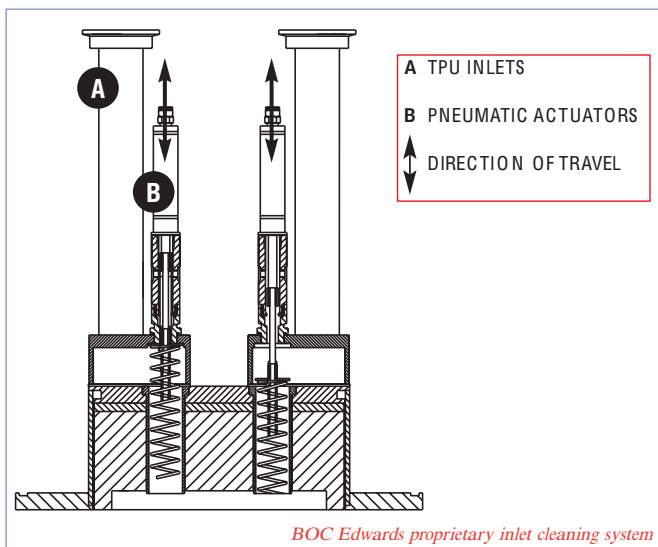


GREEN SOLUTION

The lower operating temperature of the TPU combustor compared to a flame results in minimal NO_x formation.

Some applications (eg. Tungsten, Oxynitride) require a specific combination of pump and exhaust management components for an effective system. Ask our specialist staff for advice.

UNIQUE SELF-CLEANING INLET DESIGN



BOC Edwards proprietary inlet cleaning system

Early oxidation of silane as it enters the combustion chamber can result in the formation of silica deposits on the inlet pipes. All TPU units feature a unique self cleaning system built into each inlet.

Regular pneumatic operation of the system cleans the inlet without affecting conductance, ensuring any solids pass into the combustor zone and hence into the wet scrubber.

The new models feature wide fuel capability; gases from methane to all mixtures of propane/butane can be used. The TPU is available in 3 versions with 1, 2 and 4 inlets called TPU1 - TPU2 - TPU4 respectively. Normal input gas flows are 1 x 200 slpm, 2 x 100 slpm, or 4 x 50 slpm.

WIDEST PROCESS APPLICATIONS



APPLICATIONS

TPU units are suitable for all silicon CVD, compound semi MOCVD (flows up to 100 slpm H₂) and many etch processes.

Many large installations are in operation around the world, as per the example illustrated above.

GASES

Process applications using any of the following gases can be treated:

SiH ₄	TEOS	WF ₆	TMP	TEB	C ₃ F ₈
PH ₃	AsH ₃	TEAS	TMB	GeH ₄	CHF ₃
B ₂ H ₆	CF ₄	C ₂ F ₆	SF ₆	ClF ₃	NF ₃
CO	TDMAT	PMAT	F ₂	HF	HCl

Other gases can also be treated. Contact BOC Edwards specialist staff for advice.

Simultaneous input of incompatible gases from different inlets can be safely treated (eg. silane from inlet 1 and NF₃ from inlet 2).

FEATURES & ORDERING INFORMATION

FEATURES

- Units can also be fitted with inlet pipework heating to prevent the condensation of process by-products on, for example, tungsten and TEOS applications.
- Nitrogen dilution flow, for adding when bypass lines are opened, is available as a standard option.
- The improved Facilitation Module is standard with all machines.
- All units are designed for operation with second use or recycled water.
- As a result, cost of ownership is the lowest available, coupled with the best performing technology.



Optional inlet pipework heating

ORDERING INFORMATION

	YO40	X	X	X	X	X	
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MODEL TYPE

1	"E" Model 230V 50 Hz + Service Module
2	"S" Model 110V 60 Hz + Service Module
3	"J" Model 100V 50 Hz + Service Module
4	"J" Model 100V 50 Hz + Service Module
A	"E" Model 230V 50 Hz + Water Recirculation Module
B	"S" Model 110V 60 Hz + Water Recirculation Module
C	"J" Model 100V 50 Hz + Water Recirculation Module
D	"J" Model 100V 60 Hz + Water Recirculation Module

NUMBER OF INLETS

4	4 Inlets:- Standard TPU 4
1	1 Inlet:- Standard TPU 1
2	2 Inlets:- Standard TPU 2

EXTRAS

0	Standard
1	Bypass Nitrogen Dilution Kit
2	High CF ₄ Abatement Module
3	1 & 2

OPTIONS

0	Standard Unit
1	TMS (Recommended for TEOS & W-CVD)
2	Remote Bypass
3	TMS & Remote Bypass

FUEL CALORIFIC VALUE/TYPE

0	36.9 to 42.3 Mln ⁻³ :- Methane
1	92.5 to 105.75 Mln ⁻³ :- Propane/LPG
2	Other Fuel gas

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