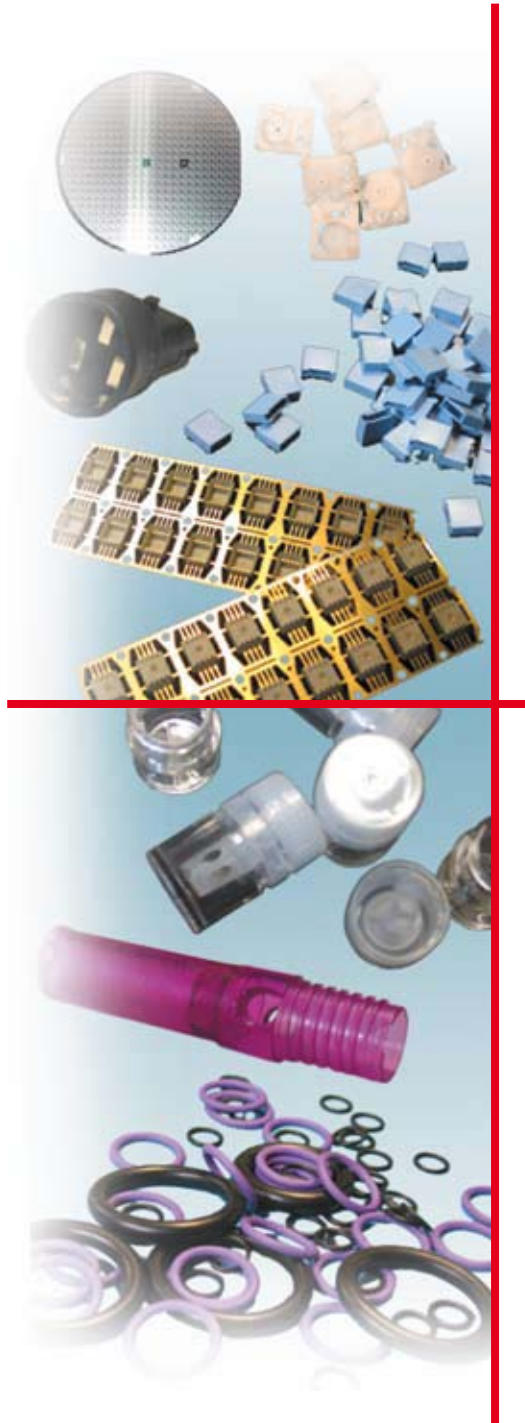


Tetra 30/50

Plasma Systems For Production And Research



Tetra 30/50

Technical Data

Standard: Tetra-30-LF / Tetra-50-LF

1. Dimensions of cabinet (19" Rack): without connections:

Tetra-30: approx. W 600mm x H 1800 mm x D 800 mm

Tetra-50: approx. W 600mm x H 1800 mm x D 800 mm

Weight: approx. 250 kg (without pump)

2. Dimensions of vacuum chamber:

Tetra-30: approx. W 305 mm x H 300 mm x D 370 mm

Tetra-50: approx. W 305 mm x H 300 mm x D 625 mm

Chamber volume: approx. 33 l / 57 l

3. Gas connections:

2 gas channels through needle valve

4. Plasma generator:

40 kHz / 0 – 1.000 W, infinitely variable

5. Electrodes and goods-carriers:

The machine can be equipped with one to eight goods-carriers / electrodes optionally with a rotary-drum

6. Hardware Control:

Full automatic, process time by timer

Start button / Stop button

Parameters: pump down pressure, process pressure, gas mass flow (ratios), stabilization time, power, process time, flushing time

7. Connections:

Gas: 6 mm Swagelok

Power supply: 400 V / 16 A

8. Pump:

2-stage rotary vane pump

Pumping speed: min. 16 m³/hr

the pump can run with oxygen exhaust filter



Technical Data

Standard: Tetra-30-LF-PC / Tetra-50-LF-PC

1. Dimensions of cabinet (19" Rack):

Tetra-30: approx. W 600mm x H 1800 mm x D 800 mm

Tetra-50: approx. W 600mm x H 1800 mm x D 800 mm

Weight: approx. 250 kg (without pump)

2. Dimensions of vacuum chamber:

Tetra-30: approx. W 305 mm x H 300 mm x D 370 mm

Tetra-50: approx. W 305 mm x H 300 mm x D 625 mm

Chamber volume: approx. 33 l / 57 l

3. Gas connections:

2 gas channels through mass flow controller

4. Plasma generator:

40 kHz / 0 – 1.000 W, infinitely variable

5. Electrodes and goods-carriers:

The machine can be equipped with one to eight goods-carriers / electrodes optionally with a rotary-drum

6. Hardware Control:

The PC control is based on an MS Windows computer with an industrial field bus.

Gas mass flow, pressure and power are regulated

Two Modes: manual or automatic operation

Parameter: pump down pressure, process pressure, gas mass flow, pressure stabilization time, power, process time, flushing time, ventilation time

Failure limits for: pressure, mass-flow, power, temperature

Miscellaneous: digital pressure regulation, acoustic advice of process-end, vacuum safety switch, door safety switch, compressed air pressure sensor, signal lamp, network interface card

7. Connections:

Gas: 6 mm Swagelok

Power supply: 400 V / 16 A

8. Pump:

2-stage rotary vane pump, pumping speed: min. 16 m³/hr
the pump can run with oxygen, exhaust filter



The fully automatic control:

The fully automatic control was conceived for continuously running processes with only a **few parameter changes**. In contrast to the PC variant gas flow, pressure and power are only steered and not electronically regulated.

Through pushing the „start“ button, the plasma process runs **fully automaticly**:

1. Pump
2. Gas delivery
3. Power / Timer / Plasma process
4. Flushing
5. Ventilation

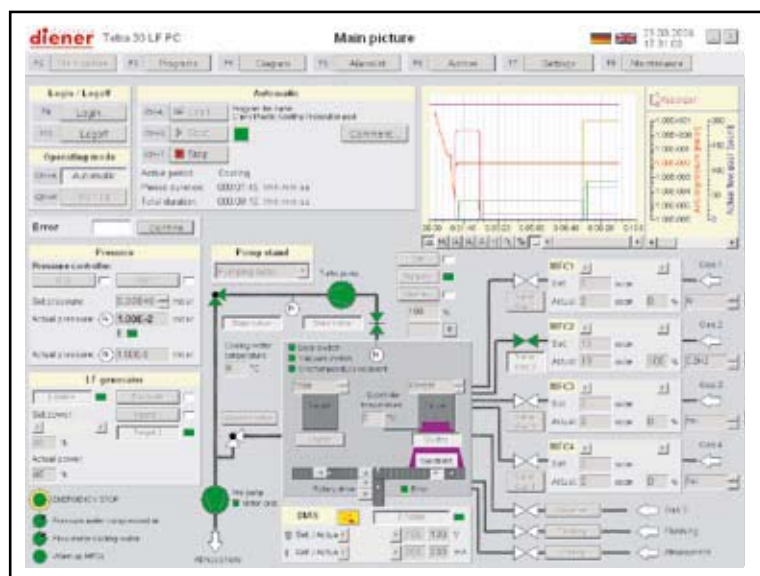
There is also the possibility of starting and of terminating each sequence of the process **manually**. For this the buttons are successively operated.



The PC-control:

The PC-control was developed by us, for applications with frequent changes of parameter and a high requirement to the **process regulation** and the **process documentations**.

- Visualization of the system
- Simple operation
- Password protection
- Input of comments
- Regulation of all process-relevant parameters
- Recording of all process-relevant parameters
- Documentation of all process-relevant parameters
- 100 programs with 10 subroutines, each are storable
- Customizations are possible



Available options:

- 13.56 MHz - generator
- 2.45 GHz – generator
- intake filter for vacuum pump
- carbon exhaust filter
- automatic door
- barcode reader
- bias voltage measurement
- butterfly valves
- rotary drum (bulk goods, powder)
- pressure-reducing valve
- spare parts set
- faraday box
- gas shower
- heating plate
- ion measuring sensor
- corrosive gas version
- monomer bottle
- network connection
- PC-control
- polymerization accessories
- RIE electrode
- safety valve
- software (also customized)
- special flanges
- temperature sensors
- test inks
- vacuum pump systems
- device for powder treatment
- trays (also customized)
- service contract
- additional gas channels
- Mass-Flow-Controller, needle valves
- roll to roll system (foil treatment)
- more options on request



pics: removable rotary drum
for Tetra 30 / 50



pics: goods carrier
for Tetra 30 / 50

Applications

- degrease/clean
- photoresist ashing
- hydrophilization
- hydrophobization
- oleophobization
- powder treatment
- pre-treatment before printing
- pre-treatment before bonding
- pre-treatment before painting
- pre-treatment before soldering
- pre-treatment before molding
- pre-treatment before casting
- pre-treatment before gluing
- ...

Applications area

- Analysis
- Archaeology
- Automotive industry
- Biotechnology
- Elastomer technology
- Electrotechnology
- Electron microscopy
- Precision mechanics technology
- Research and development
- Semiconductor technology
- Small-batch manufacturing
- Plastic industry
- Medical devices manufacturing
- Micro system technology
- Solar cell technology
- Textile technology
- ...

Our Service offers

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- Free consulting regarding plasma treatment
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- Machines for hire purchase
- Different financing concepts
- Contract labour
- Process development also locally
- Surface analysis
- Providing informative materials
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- ...

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