

CaLCTec

Precision electro-optical components based on
Liquid Crystals Technology

We design and manufacture:

- Switchable polarization rotators
- Variable optical retarders
- Intensity modulators
- Phase modulators
- Electro-optical shutters
- Prototypes of liquid crystals devices

...and we supply services in the field of Liquid Crystals and thin films technology:

- ITO engraving
- Surface coating for LC alignment (SiO,
Polyimides, Polymers, Sylanes, LB films)
- Empty cells for Liquid Crystals optical and
electro-optical measurements

We also design and manufacture precision instruments for scientific and R&D laboratories:

- Spin-Coaters
- Hot-Stages and Temperature controllers
- Dispenser
- Rubbing machine

CaLCTec S.r.l.

Calabria Liquid Crystals Technology
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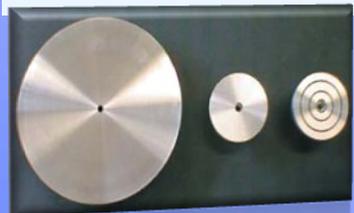
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SPIN COATER SYSTEM



**The full automatic
Spin Coater !**

The **CaLCTec** Fr10KPA is a full automatic spin coater, very easy to use. It allows to realize thin films with any kind of material (photo resist, polyimides, sol-gel, enamel, varnish et al.) of finely controlled and reproducible thickness, over any kind of substrate (copper, silicon, glass, plastic).



Options available:

- Internal or external vacuum pump automatically operated
- Interlock safety system when the pressure is not sufficient
- Vacuum pump exhaust valve for glove box operation
- Heated chuck (up to 200°C) with a PID temperature controller - 0.1°C resolution.
- Chuck without washers with adjustable suction area (samples from 10 to 70 mm diameter)
- Chuck with or without washers available in any diameter.
- Chuck for uneven and not perfectly planar substrates
- Special chucks available on request

Fr10KPA: manual operation

Fr10KPA-PC: pc controlled

Fr10KPA-OP : optical fiber

Fr10KPA-HC : heated chuck

Fr10KPA Principal Features:

- Stainless steel case
- Stainless steel bowl - 26 cm Ø
- Chuck in any size and type
- Rotating speed: 100-10000 rpm
- Acceleration: 1-12000 revolution/s
- Manual operation (on-off)
- Totally automatic, PC controlled option
- Interlock safety system: cover not closed/ insufficient vacuum (optional)
- Spinning of heavy substrates allowed
- Easy and rapid maintenance

FR10KPA

software characteristics:

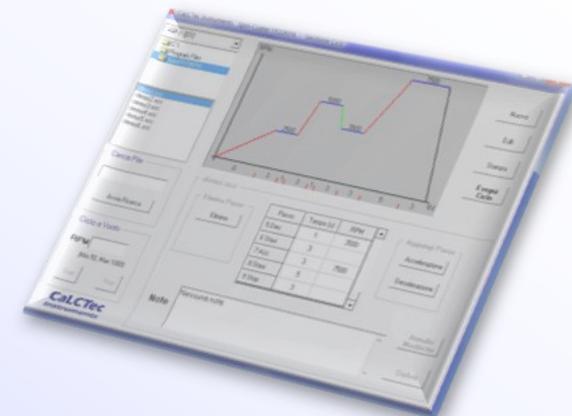
The software easily allows to set operating cycles with an arbitrary number of steps. They can be loaded, executed and modified at any time just with a mouse click and even without reading instructions manual! Any recipe can be integrated with a comment and saved on the preferred PC memory unit. O.S. Windows XP, 7, 8 and 10. Quick and easy installation
NO particular drivers required
Operating cycles with an arbitrary number of steps
Straightforward cycle programming

For each step it is possible to define accurately: starting speed, acceleration/deceleration, target speed, rotation time at steady speed.

Notes or comments of arbitrary length can be added to the recipe
Search function for recipes based upon comments contents

Easy management of recipes data base

Recipes file in ASCII format



The **CaLCTec** Fr10KPA is unique since the chuck temperature can be precisely controlled up to 200°C when the °K-chuck option is installed.

The chuck temperature control can be activated either when the chuck is rotating or stopped.

This exclusive feature expands the capabilities of the spin-coating technique since it makes possible to deposit not only bare solutions but also thermoplastic materials or oversaturated solutions.

Moreover the film baking during the spinning process or the "in situ" pre-curing or curing of polymeric materials is now made possible.

The CaLCTec Fr10KPA spin coater is completely adaptable to the customer needs, even with special custom accessories.

