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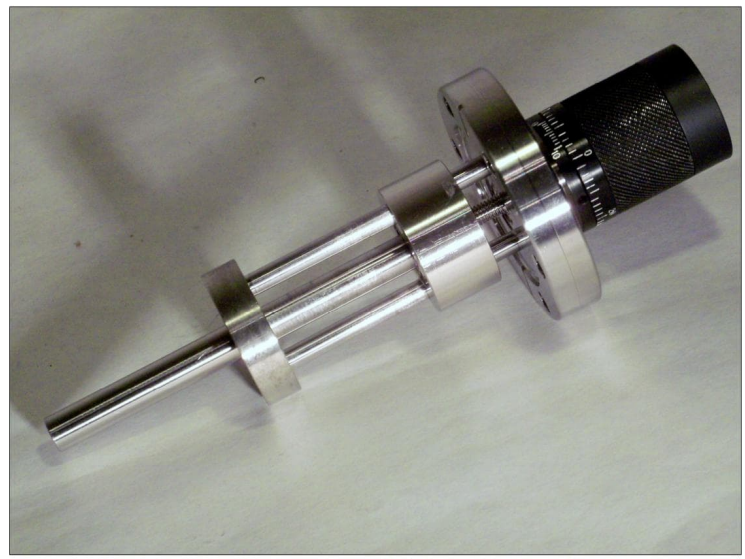
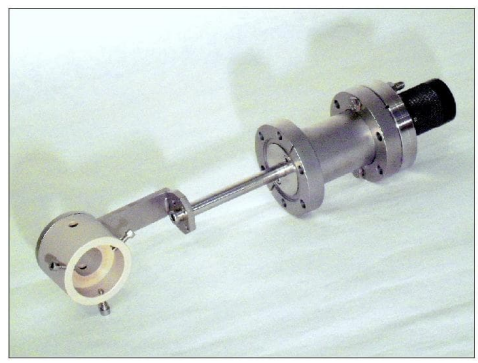
REP NEWSLETTER

Volume 01, No. 01 Jan 05, 2015

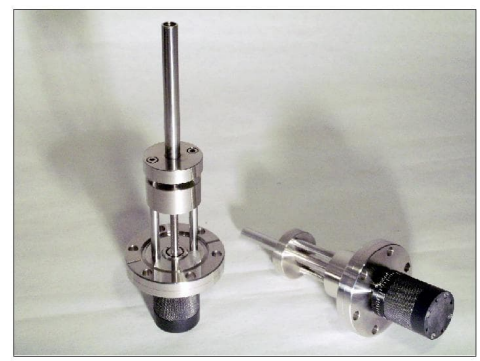
LINEAR TRASLATOR



A new series of linear traslators have been designed.
One of the main problem in the old fashion linear traslators was the membrane bellows: more space occuped, life cycles limited, expensive, high outgassing rate.
So we have adopted the magnetic coupling.New magnetic circuit design and stronger magnetic material allows to reach torsional couple similar to mechanical couple.The dispersed magnetic lines are lower than terrestial magnetic field.
The application has been adopted in UHV chamber, mounting a shutter entering 150mm inside a high intensity plasma.



LINEAR MAG-50 with PEEK sensor support



UHV CF40 linear mag-100

Sponsored by : Chemistry Dpt-Genova University

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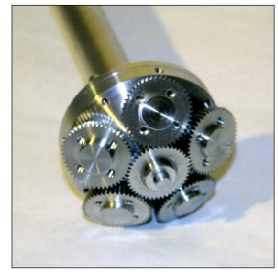
REP NEWSLETTER

Volume 01, No. 02

Feb 03, 2015

PLD targets

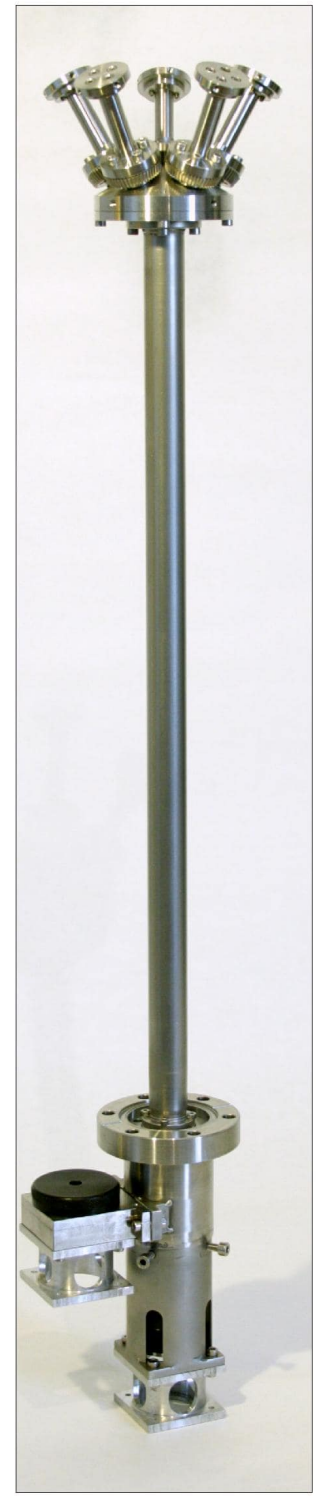
Double coaxial coupling



Gear box

Target rotation

Shield



A new planetary target holder for Pulsed Laser Deposition (PLD) has been designed to support five differents compounds.
A double coaxial magnetic rotational movement has been adopted to positionning and rotate each target under the beam laser.Two step motors drives the rotations though magnetic coupling,eliminating the bellows use : longer life, more fiability and cheaper price are the results.

Sponsored by :
C & K Scientific and Technological Instruments, TAIWAN-Mr Can Chen Lo

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REP NEWSLETTER

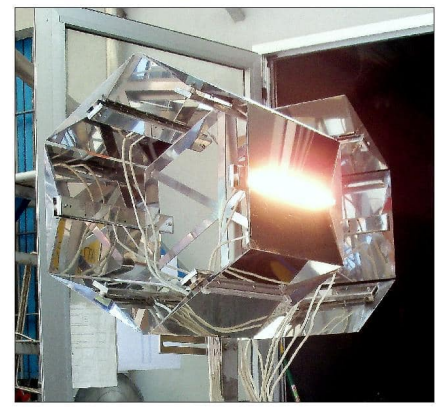
Volume 01, No. 03 Apr 8, 2015

SPACE SIMULATOR

Space simulators are designed to perform a variety of test in vacuum environment : satellites, engines, robots, rocket propulsion, telescopes, electonic devices are checked in a wide range of physical conditions that we find out in the space.

36Kw-IR source

A space simulator with 4m diam x6m length was operated at 5.10*-6mbar of vacuum.
To improve the ultimate vacuum, a bake out system has been designed : a 36Kw Infra Red source put in the centre of the space simulator.
Throughout the pumping down in short time the inside wall temperature of the chamber has been increased to 130°C and in few days the ultimate vacuum reached the low 10*-7mbar.



2Kw IR lamp in test

See also : NEWSLETTER Vol 1 n° 08 - 2013
NEWSLETTER Vol 4 n° 06 page 1/6 - 2009

sponsored by : ZANON - Schio -Italy

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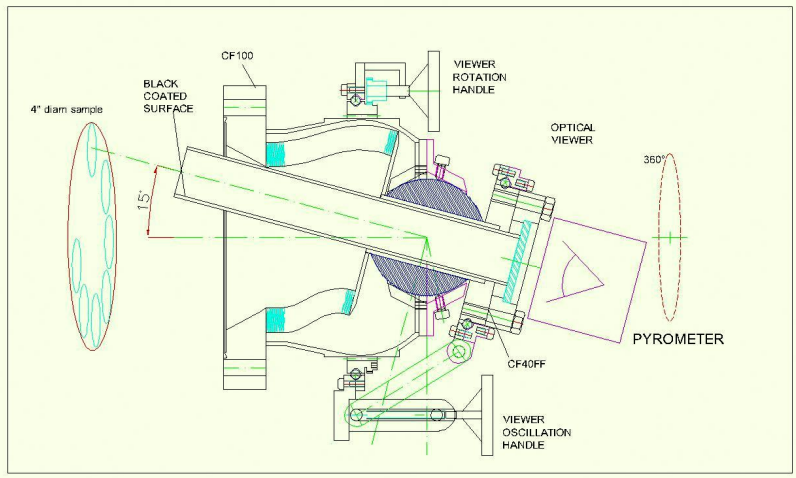
REP NEWSLETTER

Volume 01, No. 04 Apr 11, 2015

30° STERADIANT WINDOW

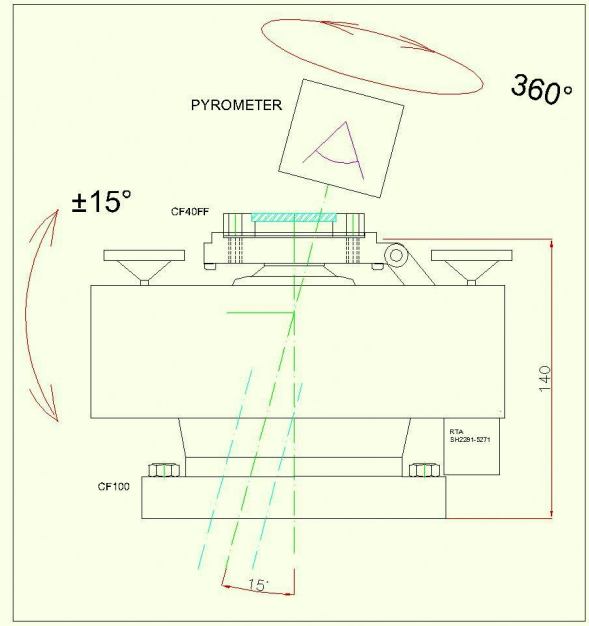
Ultra High Vacuum 30° Steradiant Viewport

Temperature measure on heated sample surface during thin film Pulse Laser Deposition (PLD) is an important characterisation parameter.
An optical viewer to map the100mm diam. surface temperature of the sample during the deposition has been designed: a 30° steradiant viewport allows to raster the sample surface temperature in real time with a pyrometer.



Manually operated 30° Steradiant Viewport Mod SV30

Steradiant viewport has been automatised with two step motor: one in the rotation and one in the rocking motion.
So with dedicated sowftware a PC can measure point to point the surface temperature of the sample during the growth.



Motorized optical viewer

sponsored by : Physics Dpt. , Beijing Universty, China

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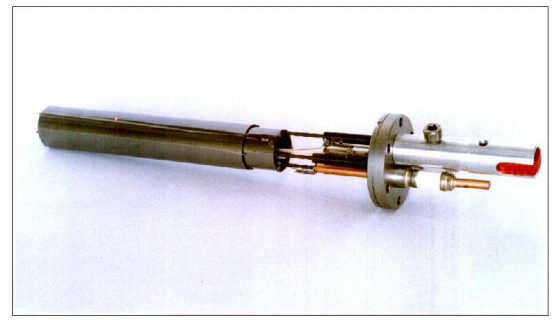
REP NEWSLETTER

Volume 01, No. 05 Apr 21, 2015

KNUDSEN CELL

Special Knudsen Cell (KC) has been designed to evaporate Germanium in Ultra High Vacuum (UHV)



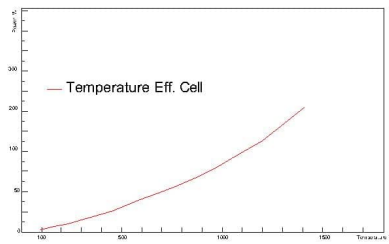
CF40 KNUDSEN CELL

Technical Data :

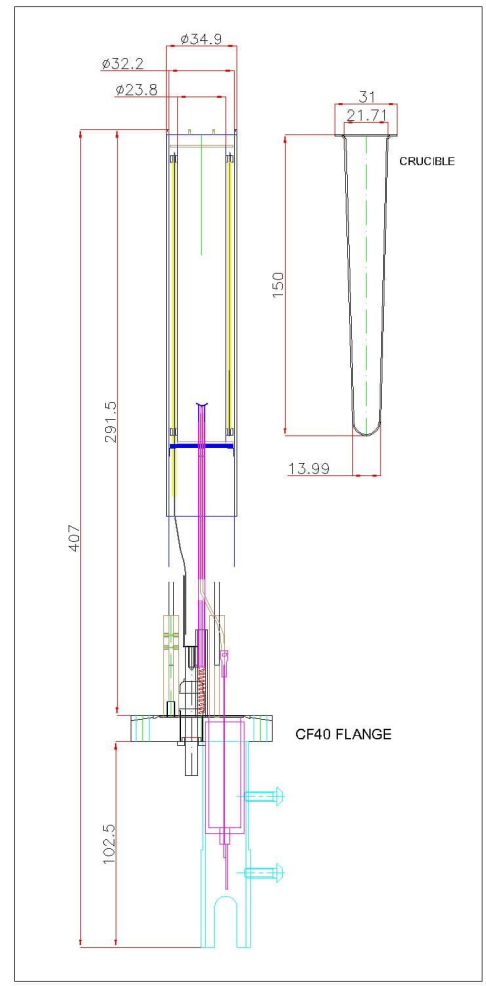
Type	MB204
Heating System	Radiation heating, tantalum wires with PBN insulators
Temperature range	100°C ... 1 400°C bulk zone
Temperature stability	< = 0.1 °K depending on the PID
Max outgas temperature	1 600°C effusion cell without crucible
Max power	360 W bulk zone
Bake out temperature	250°C
Conditioning	Heated to maximum temperature
Shipping	polietilene bags

Custom :

Flange size	CF 40
Max outer diameter	35mm
Length	as specified
Thermocouple	one C thermocouples WRe 5%-26%
Crucible material	PBN
Crucible capacity	20cm*3



MB204 Kcell K40-40-1



sponsored by : L-NESS Laboratory, Como, Italy-Dr. Sergio Bietti

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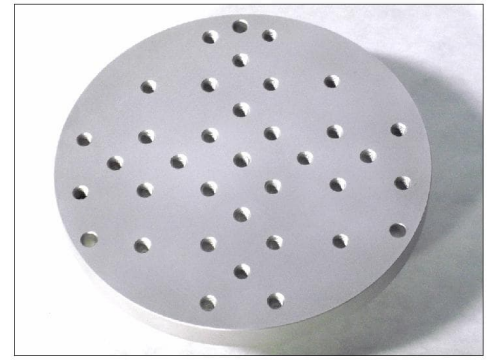
REP NEWSLETTER

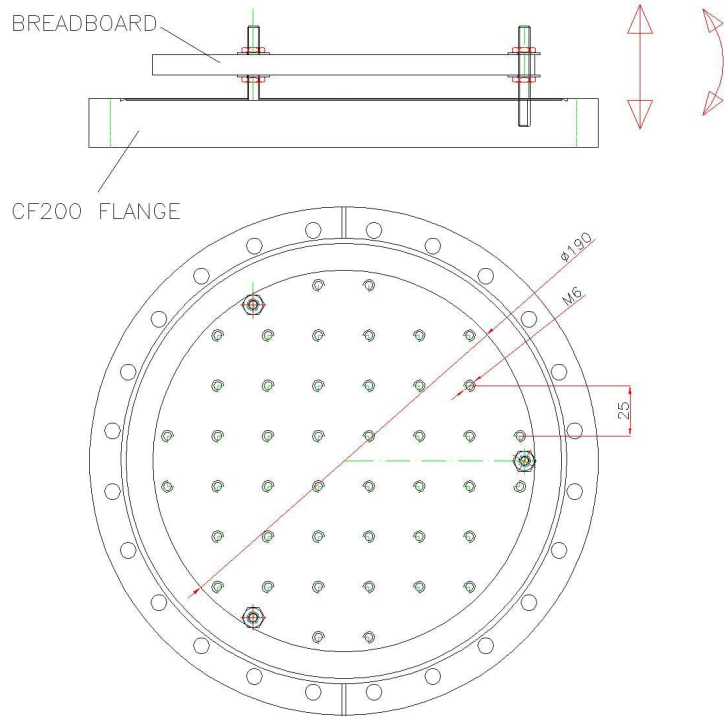
Volume 01, No. 06 May 24, 2015

UHV BREADBOARD

A breadboard for Ultra High Vacuum (UHV) has been made to mount a femtosecond laser beam mirror. The mirror is rotated by a lateral manipulator and can shift on the breadboard.
Breadboard is mounted on a CF200 through 3 studs that allows the positionning of the mirror



ERGAL breadboard



BREADBOARD ON CF200

sponsored by : IFCO, Barcelona, Spain -Dr. Tavernatakis A.

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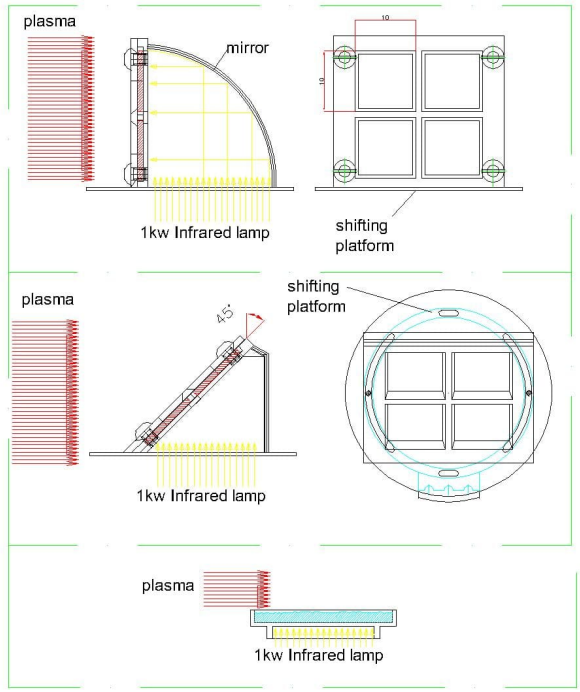
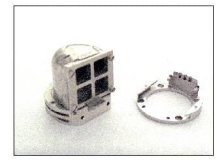
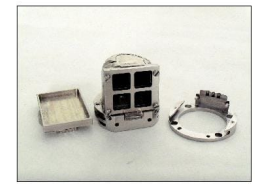
REP NEWSLETTER

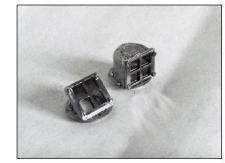
Volume 01, No. 07 Jun 8, 2015

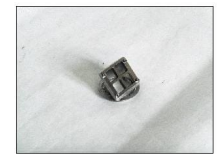
PLASMA SAMPLE HOLDERS



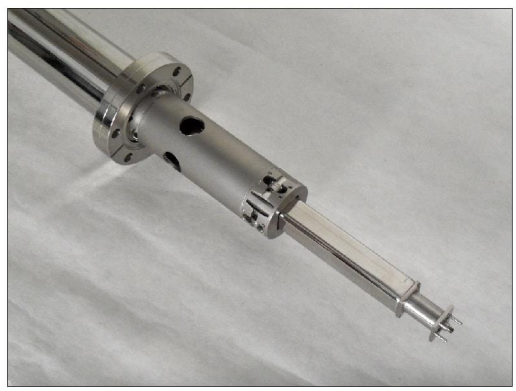




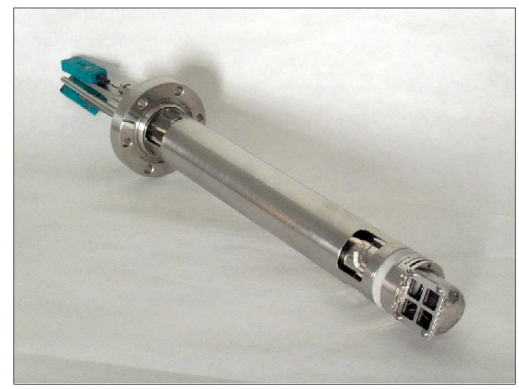




For Plasma Focus experimental chamber 3 sample holders have been designed: horizontal, vertical and 45° positionning shape.
Transferable chariot drive one sample holder into the chamber on a vertical manipulator with two inconel sheated thermocouples and an electrical contact for polarization.
The turret shifts 180°.
A water cooled infrared furnace heats the samples till 700°C



750mm magnetic transfer arm



Insulated sample holder

sponsored by : Plasma Physics Lab-CNR,Milano - Ing. Francesco Ghezzi

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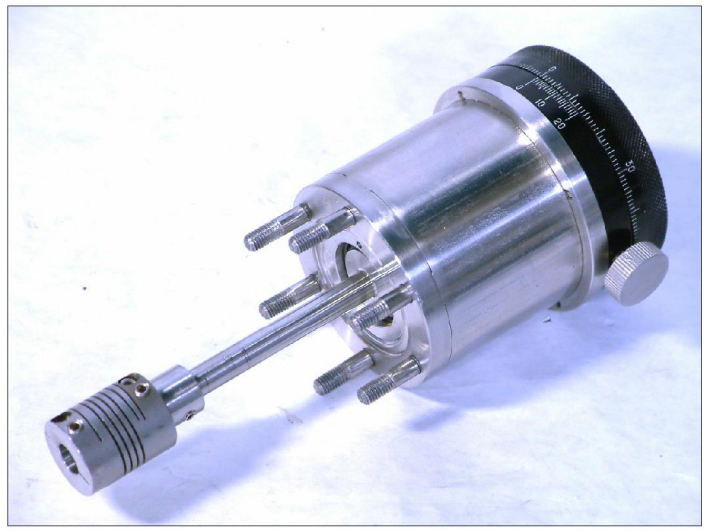
REP NEWSLETTER

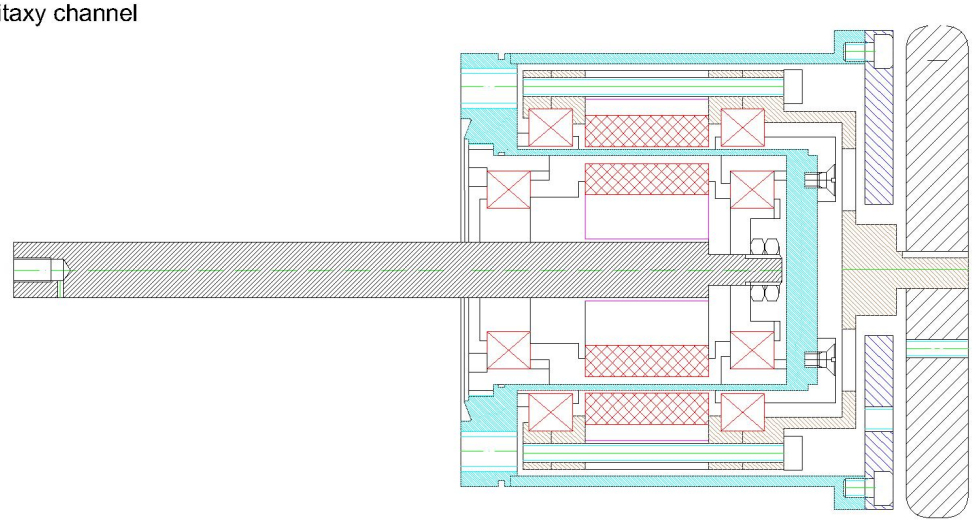
Volume 01, No. 08 Jul 10, 2013

MAGNETIC ROTARY DRIVE



- *1.4N/m couple*
- *bakeable to 300°C*
- *long life*
- *UHV applications*

These magnetic rotary drives are designed to be used in Ultra High Vacuum (UHV).
These magnetic-drive feedthroughs have solved the problems of vulnerable bellows or dynamic seals, providing an intrinsecally safe solution for the life of rotation in UHV.
The unique design of magnetic coupling circuit has evolved the range of rotary feedthroughs over the last decade.
With the application of the new magnetic materials the torque level has been increased togheter with the bake temperature: so the high torque to designed size ratios is the result of a unique magnetic coupling, which focuses the multiple magnetic fields.
In this way any stray magnetic flowlines are reduced below the earth's field, allowing the use with sensible applications as XPS and UPS.
This model has been adopted to move a sample charriot into 2.10*-11mbar Molecolar Beam Epitaxy channel



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