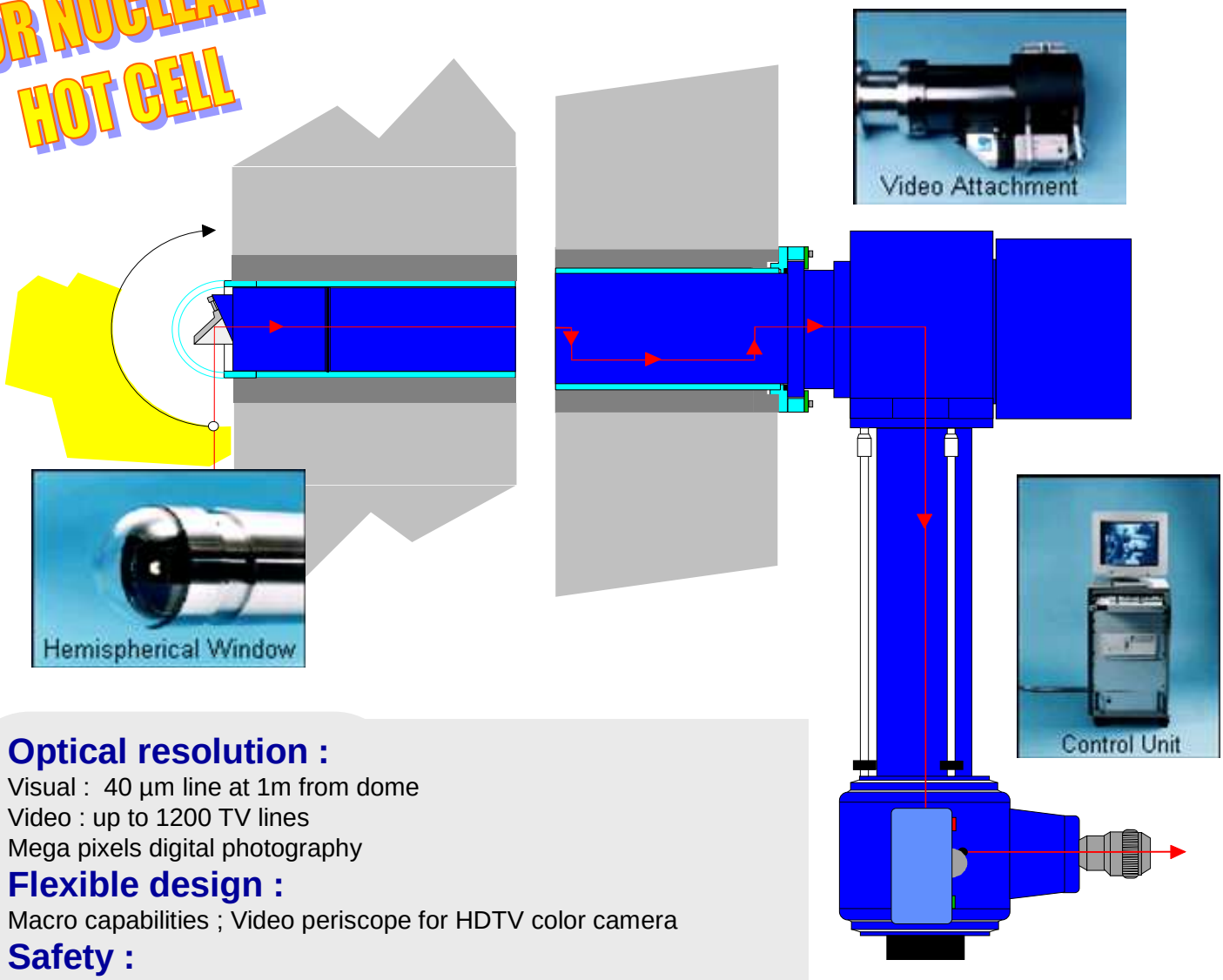
Radiation resistant, through' wall, panoramic PERISCOPE PC1200

The panoramic periscope CERCO PC 1200 type *has been designed for visual observation, photography and video inspection inside nuclear cells through the wall shielding ; more than a half-space can be scanned by the line of sight of the periscope. The panoramic periscope PC 1200 achieves the highest optical resolution and perfect visual comfort for long time observations. No electronic part (motors, camera) is exposed to radiations. Motorisations of optical motions use only basic components, in order to allow maintenance over decades.*

FOR NUCLEAR HOT CELL



Optical resolution :

Visual : 40 µm line at 1m from dome
Video : up to 1200 TV lines
Mega pixels digital photography

Flexible design :

Macro capabilities ; Video periscope for HDTV color camera

Safety :

Shielding equivalent to cell wall up to 1.3m (gamma and neutrons)

Reliability and maintenability :

Robust mechanical design; design free of parts subject to short or mid term obsolescence like video cameras ; no consumable parts ; zero maintenance costs

Main customers;

Nearly 25 periscopes PC1200 have been delivered to French CEA, EDF, AREVA and to similar companies in foreign countries.

EADS SODERN

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Containment liner
Tight liner; max diameter 140mm interchangeable dome port.

Thru' wall part:
Optical and mechanical components exposed to radiations withstand cumulated radiations of more than **5 k Gray**. Can be removed of the containment liner for maintenance.

Dome port
Hemispherical dome (non browning glass or silica)

Scanning prism
Scans a conical field of **210°** by pan and tilt rotations.

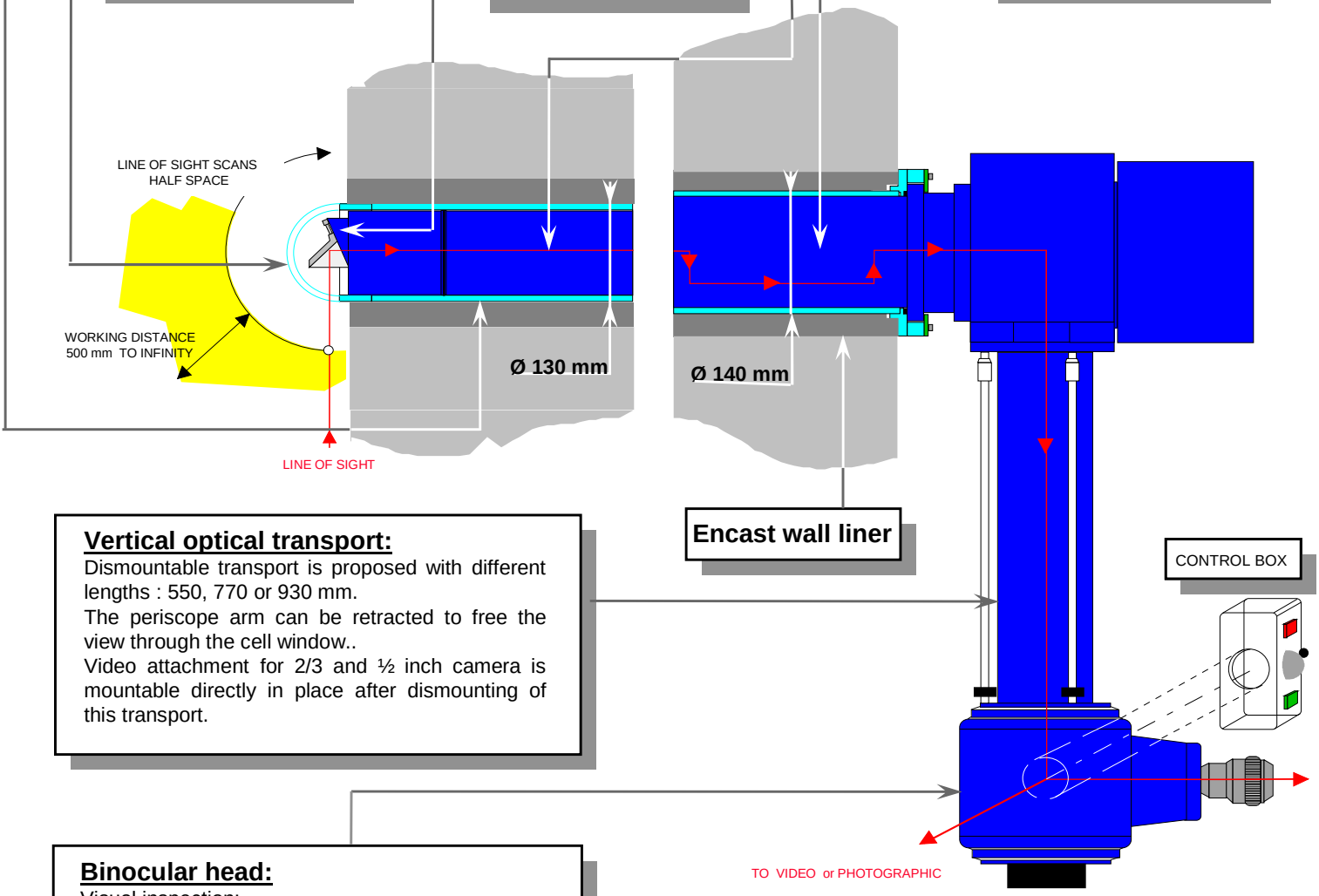
Optical zoom
Range: **x 6**
FOV : **5°to 30°**

Biological shielding:
The Thru'wall part is equipped with biological shielding equivalent to 1.3 meter of concrete density 3.7.
Neutron shielding on request.

IN CELL AREA

SHIELD WALL
Thickness; 800 to 1300 mm

OUT CELL AREA



Encast wall liner

Vertical optical transport:
Dismountable transport is proposed with different lengths : 550, 770 or 930 mm.
The periscope arm can be retracted to free the view through the cell window..
Video attachment for 2/3 and ½ inch camera is mountable directly in place after dismounting of this transport.

Binocular head:
Visual inspection:
Angular Magnification: variable from 1.5x to 9x.
Resolution: 40 µm line width is observed at 1 meter from dome at Magnification 9x.
Photographic inspection:
Photographic attachments with specific lenses for digital camera or large Polaroïd frames
Video inspection
Video attachments, with specific lenses for 1 inch, 2/3 inch and ½ inch video camera.
Resolution depending on camera performances; up to typically 1200 TV lines.

Viewing control system:
Image erection: images correspond to the view which would be seen by an observer whose eyes would be at the position of the spherical window.
Electronic remote control of zooming, focusing, pan and tilt. The direction of the line of sight is selected by a joystick.

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