THE AIR-CONDITIONED DISPLAY CASE

Vatican Museums Conservator's Office

Temporarily exhibiting works of art entails both risks to their structural integrity in moving them and risks of degradation linked to the change from the micro-environment where they were air-conditioned and their relocation in a different environment characterized by the presence of many visitors.

When the work of art is a famous painting by an absolute genius of the Renaissance, these problems assume even greater significance. The highest level of security from theft and damage will have to be guaranteed while at the same time trying to foster that special excitement which arises from direct contact with the masterpiece. For this reason, we have resorted to displaying the work in a display case.

The one being used by the Vatican Museums for Leonardo's *St Jerome*, designed and created by the Articolarte company, is a hi-tech air-conditioned display case not intended to steal the scene from the work of art.

We can in fact admire the painting close up with the same gilt frame created in the nineteen-thirties which has now accompanied it for almost a century. In reality, the panel is contained in a robust, hermetically sealed metal structure which ensures the right degree of security and manageability, protection from mechanical stresses, insulation from the external environment, and stabilisation within optimal microclimatic parameters for the conservation of the constituent materials, in particular the wooden support. The stratified glass creates a protective barrier with excellent optical-aesthetic qualities and transparency. The passive control of the relative humidity is ensured by state-of-the-art padding material capable of stabilising the interior of the display case at the desired levels.

A miniaturised internal sensor placed in contact with the support, registers and memorises the temperature and relative humidity data. Their visual presentation and comparison with the values for the immediate environment make it possible to establish the degree of insulation and stabilisation afforded to the support.

In this display case, with these conservational devices, the Vatican Museums' *St Jerome* will tranquilly face the homage of the many visitors to the Charlemagne Wing before travelling the world, being received in prestigious museums, and coming home in 2020 after a long tour.

Captions

1) Gilded wooden frame created in 1931 at the studio of Cavalier Giuseppe Paolucci in Urbino for the opening of the new Vatican Pinacoteca.
Interior of the display case with supporting structure in aluminium, reinforced safety glass of heightened optical-aesthetic quality and transparency (luminous transmission coefficient: 99%; absorption of UV radiation: 99%; reflection index: <1%).
View of the back of the display case.

2) Overall view and details of the *MSR145*® sensor – miniaturised internal probe and external datalogger – with which it is possible to measure the temperature and humidity levels inside the display case.

3) Rear closing panel, edged with *Plastazote*® (polyethylene expanded with pure nitrogen) which guarantees insulation and firmness.
Using a system of magnets, a sheet of *Zorflex*® activated carbon has been attached to the back of the panel to neutralise and absorb possible contaminating gases.
The metallic guides bored into the centre of the panel allow the insertion of two 300g packs of *Propadyn*®, a stabilising padding material pre-conditioned at 55% relative humidity.

4) Comparison of the graphical displays of temperature and relative humidity on the "St Jerome" display case and in the Painting Restoration Laboratory which houses it. The first data confirm the correct setting up of the system and the progressive stabilisation at levels of relative humidity prescribed for wooden materials.