



Seit 1877

Kiefer

Luft- und Klimatechnik

Neue Wege mit Luft

Linear Diffuser INDUL

Museum Louvre Abu Dhabi



Photo © Roland Halbe

Exterior view of the Louvre

The centrepiece of the building, designed by top French architect Jean Nouvel, is its enormous dome. It has a diameter of 180 metres and, at 7500 tonnes, weighs almost as much as the Eiffel Tower. The dome consists of a total of nine layers – four external steel layers and four internal aluminium layers, plus the steel supporting structure in between. The offset arrangement of these layers creates 7850 "stars" of varying sizes and at various angles. Depending on how the light is falling, they produce constantly changing shadows on the walls and floors. Amplified by reflections from the water basins, the overall result is an impressionistic work of art composed of light.

The dome stretches across the whitewashed stone block buildings that house the galleries themselves – buildings whose layout of alleys and squares is reminiscent of a medina, the old quarter of an Arabic city. The galleries have a total exhibition area of 8600 m².

The cost of the project amounts, in total, to over € 1.5 billion. The naming rights for the Abu Dhabi Louvre alone amount to over € 400 million for a 30 year period. The additional costs for academic expertise and future hosting of a wide range of exhibitions bring the sum to over € 1 billion. In comparison, the € 580 million spent on the construction of the building starts to look almost modest.

A good ten years elapsed between the launch of the project in March 2007 and its opening. Although the opening date was pushed back several times, this is still a remarkably short engineering and construction period for such an impressive structure, particularly in comparison with major European projects.





Seit 1877

Kiefer

Luft- und Klimatechnik

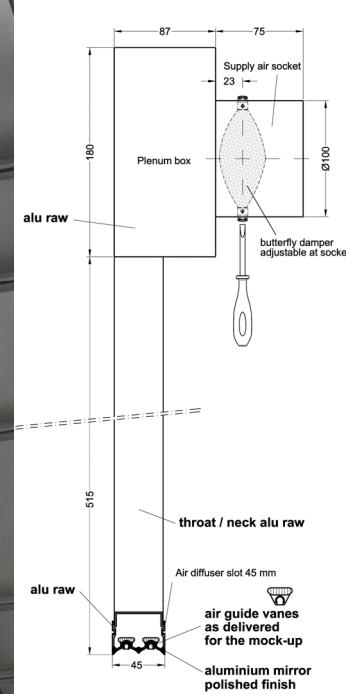
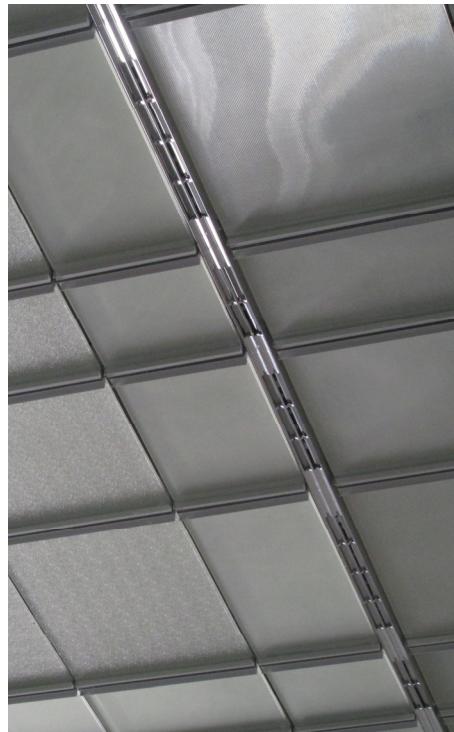
Neue Wege mit Luft

Linear Diffuser INDUL

Museum Louvre Abu Dhabi

Back in autumn 2009, BuroHappold, based in Bath, UK, began conducting air flow tests to ensure the best possible ambient air flow in the galleries, even when conditions outside are at their most extreme. On the basis of their experiments, the INDUL V45 linear diffuser from Kiefer was selected.

In the years that followed, Kiefer developed special linear diffusers based on the discharge profile of the INDUL V45, as defined by the air flow tests, taking account of M. Nouvel's architectural stipulations and requests. The diffusers in the Permanent Galleries and vestibules are particularly noteworthy, as they had to be integrated into the support structure of the illuminated ceiling. This required special diffusers with a throat height of more than 500 mm and, in some cases, an installed length of just 250 mm. Moreover, at the request of the architect, the discharge profiles needed to be highly polished and the air guide vanes coated.



Detail Linear Diffuser



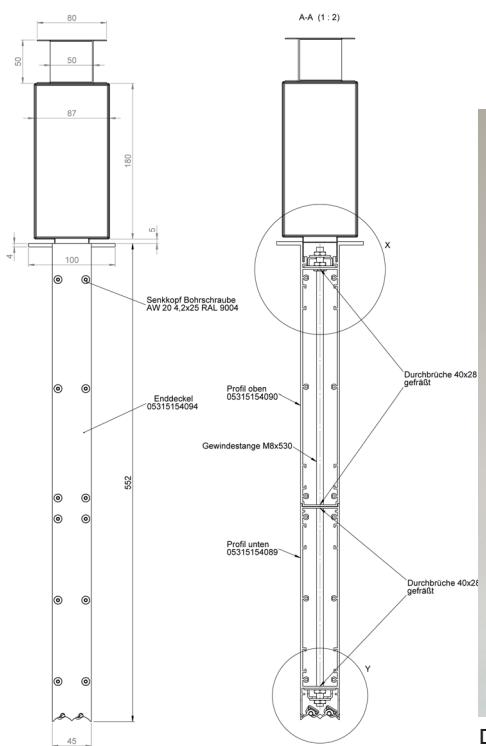
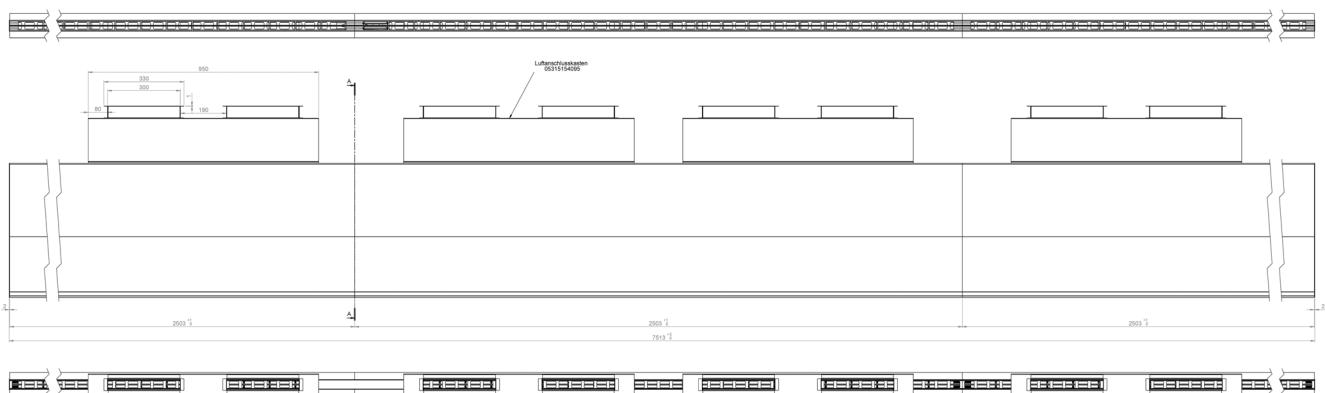
Photos © Kiefer GmbH

Illuminated ceiling in the Permanent Gallery

» SPECIAL-LINEAR DIFFUSER FOR ARCHITECTURAL REQUIREMENTS «

In the Bronze Galleries and Vestibules, the throats of the linear diffusers as well as the discharge profiles were designed to be visible, appearing as protruding design features. To this end, Kiefer developed special extruded profiles with a height of over 500 mm; and

since some of these exceeded 10 m in length, they had to be virtually free of any distortion. All of the visible surfaces here were powder coated in matt RAL 9004, with the extremely low gloss level required presenting a further challenge.



Detail Vestibule

Foto © Kiefer GmbH

Linear Diffuser INDUL

Museum Louvre Abu Dhabi

Function Linear Diffuser INDUL

The supply air is divided into fine alternating free jets, intensifying the induction of the ambient air. The high induction permits a very high temperature difference between the ambient air and the supply air. This makes it possible to make use of free cooling, to a certain extent. The required cooling capacity is thus minimised.

System Advantages

- Completely draught-free air distribution
- Low diffuser widths, from 15 mm
- Unobtrusive installation in ceiling joints
- Temperature differences up to -14 K
- Light, clean ceilings due to fine-jet characteristics
- Simple, quick and clean installation in all ceiling systems
- Special installation kit for plaster ceilings



Photos © Kiefer GmbH

Technical Data

Object	Louvre Abu Dhabi
Proprietor	Tourism Development & Investment Company
Planner	BuroHappold, Bath, UK
Architects	Ateliers Jean Nouvel, Paris
Linear Diffuser-System	Approx. 4.000 pieces Linear Diffuser INDUL V45 in special design
Completion	2017