



Pegasus Aircraft Paint Hangar

Airflow engineering for aircraft painting

Pegasus Airlines | Sabiha Gökçen International Airport, Türkiye

PROCESS ZONES. ADJUSTABLE DIFFUSION. CFD.

The challenge is at the aircraft surface

**Preparation.
Inspection.
Primer. Paint.**

Vapour and overspray need control.
Temperature and humidity must suit the coating process.

Aircraft geometry can create low-velocity regions.



Where does the air travel before it reaches extraction?

General painting-process context [3,6]. Project airflow context [1].

The initial concept used full-volume airflow



The revised design organized the hangar around functional process zones, coordinating supply with extraction.

Installed system shown. Initial-concept comparison: Gerhman [1].

The installed diffuser array



Pegasus Airlines aircraft paint hangar

RCW adjustable swirl diffuser

High-induction air distribution



Adjustable blades change the discharge pattern to suit the application.

[2] Lindab RCW. Project selection data follows.

The RCW heating selection point

RCW 400 adjustable swirl diffuser

75° blade setting for vertical discharge

2,500

m³/h per diffuser

81 Pa

pressure drop

18 units

in this selection check

Calculated selection point [4, p2]. Operating scenario rates differ.

Airflow follows the active work zone

Selected operating scenarios

Operation	Active units	m ³ /h each
Whole system	84	1,785
Nose	18	2,083
Right wing	18	2,083
Left wing	18	2,083
Tail	20	1,875

The schedule coordinates active AHUs, damper and CAV positions, diffusers and filtration.

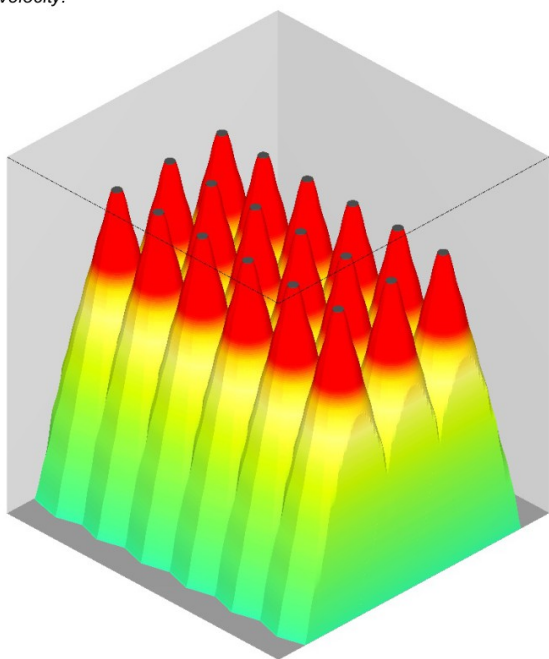
Selected scenarios from the supplied operating schedule [5, p1].

Calculated airflow in the heating case

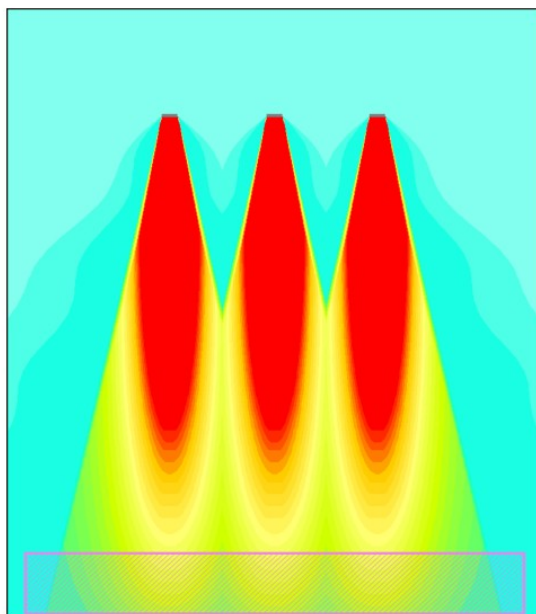
75° blades / 2,500 m³/h per diffuser

35°C supply / 28°C ambient

3D - velocity:



Velocity - Elevation Section A



Isovel: 0,2



Selection-model velocity output [4, p3]. V_x in m/s. Not field measurements.

~64%

lower required design airflow capacity

Compared with the initial full-volume ventilation concept.

What this result means

A lower design capacity. Measured fan and thermal energy savings are not quantified in the published reference.

Project-reported design comparison: Gerhman [1].

The engineering takeaway

Aircraft geometry and process demand should shape air distribution before the system capacity is fixed.

Gerhman × Lindab

Engineering, product selection, CFD and system integration through testing and commissioning support.

Mechanical subcontractor: Birleşim Mühendislik

READ THE PROJECT

gerhman.com/portfolio-item/pegasus-airlines/

[1] Gerhman [2] Lindab RCW [3] NIOSH [6] Satys
[4] Supplied selection report [5] Supplied operating schedule