



PRE-INSULATED AIR DUCT SYSTEM

NKS

NKS is an air duct system which is technologically superior to classical air duct systems. The implementation is quite practical and the performance is high. It offers significant advantages especially in site implementations.

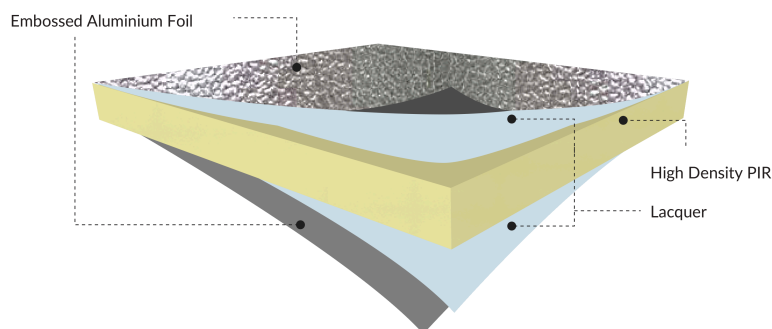


Why NKS

NKS system provides a high performance guarantee by its unique panel structure and high standard accessories. It is superior than classical (galvanization and rustproof) practices with its insulation and hygiene features by means of PIR (Polyisocyanate) and embossed aluminum foil in panels.

Panels used in NKS systems are made of high-density (52 Kg/m³) PIR material having a closed cell structure. Aluminum folio on it provides resistance and enhances hygiene and UV endurance. It is highly resistant to the corrosive effects of high humidity as well.

Panel structure



Embossed aluminium foil

Outer skin on both faces. Resists corrosion, keeps the surface hygienic and carries the UV endurance of the panel.

Lacquer

A thin film between the facing and the core, which locks the foil to the foam and keeps the bond stable in humid air.

High density PIR, 52 kg/m³

Closed cell rigid core. It gives the insulation value and the stiffness that lets the duct be built without a frame.

Insulating values up to twice of classical insulating materials is being talked about; on the contrary, classical galvanized steel has lower value $\lambda=0,0206$ (PIR) W/m²K. By means of this features, it is highly resistant to the corrosive effects of high humidity as well.

0,018

W/m²K thermal conductivity

52

kg/m³ panel density

B1

class of fire, DIN 4102

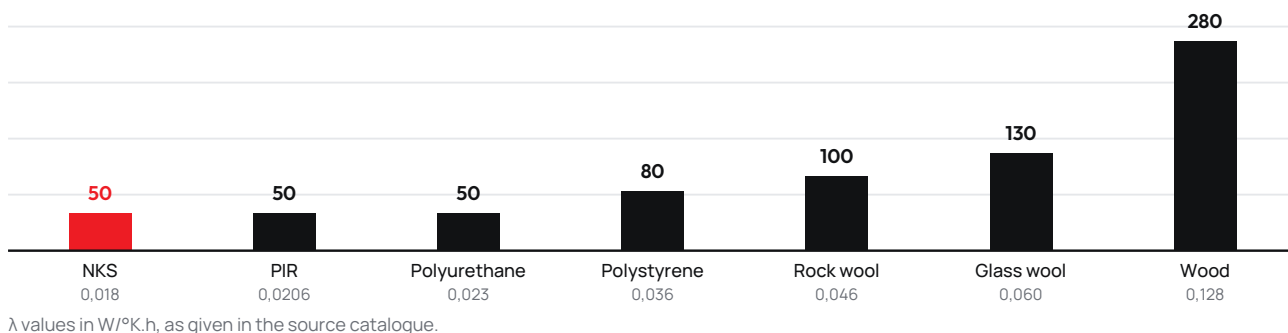
1,50

kg/m² panel weight

Duct sizes

Thickness for the same insulation value

mm



NKS ducts are produced from the same pre-insulated PIR panel with stucco embossed aluminium facings. The panel thickness follows the duct size and the design pressure.



Panel specification

NUHPANEL air duct panel (NKS T1 B2)	
Canal outer surface	Embossed aluminium steel sheet, 80 - 200 µ
Canal inner surface	Embossed aluminium steel sheet, 80 - 200 µ
Width	1200 mm
Length	4000 mm
Thickness	20 - 30 mm
Weight	1,50 kg/m ²
Density	52 kg/m ³
Heat transfer coefficient	0,0168 W/m ² °K
Class of fire (not easily flammable)	B1, DIN 4102

WHAT SETS IT APART

Ten distinguishing features

NKS Air Duct System has significant advantages compared to climate systems made by classical manner.

1 Heat insulation

Ensuring a constant and persistent ambient temperature, the system displays a perfect heat insulation performance. Additional heat insulation is not necessary. It provides energy savings up to 60% in heat abduction by means of a $\lambda=0,018$ W/m²K thermal conductivity coefficient.

2 Energy saving

Hidden flange technology in ports prevents heat leakage resulting from transmission, which provides serious energy saving that significantly contributes to the economy.

3 Air and heat loss

Performance 3-4 times better than conventional sheet metal in terms of air leakage. According to TSE EN 1507 it is suitable Class C at 0,25 lt/m²sn under 1000 Pa. Properly manufactured and assembled, it has Class D impermeability.

4 Corrosion resistant

Resistant to all kinds of water contact. PIR panels do not incorporate water into their structure by means of the closed cell structure, and do not deform by water and humidity.

5 Hygienic and eco-friendly

Aluminum folio preserves hygiene properties for long ages by means of its non-corroding structure not showing dirt. Bacterial growth is low compared to classical sheet metal ducts. PIR insulation material does not deform by dust emission. As 141-b gas is not used, it doesn't contain halogen (HCFC). New generation, eco-friendly gas and chemicals suitable to the European norms have been using. Since NKS has hygiene properties, it can be used in the health and food sector in safe.

6 Acoustic insulation

NKS composite panel provides an excellent silence and non-vibrancy due to the insulation features of PIR materials. $R_w = 16$ dB.

7 UV resistance

Aluminum coating on both surfaces prevents transmission of UV rays. It protects its stable features for a long period of time, so the panel does not deform.

8 Decorative

No blots of subsequent insulation materials in due course, by means of the pre-insulating structure. NKS panels also have the speciality that they can be dyed.

9 Assembly

Assembly is easy because of the light weight and easy processing structure. A tool box and a large table are enough for an easy production. Revision is so easy.

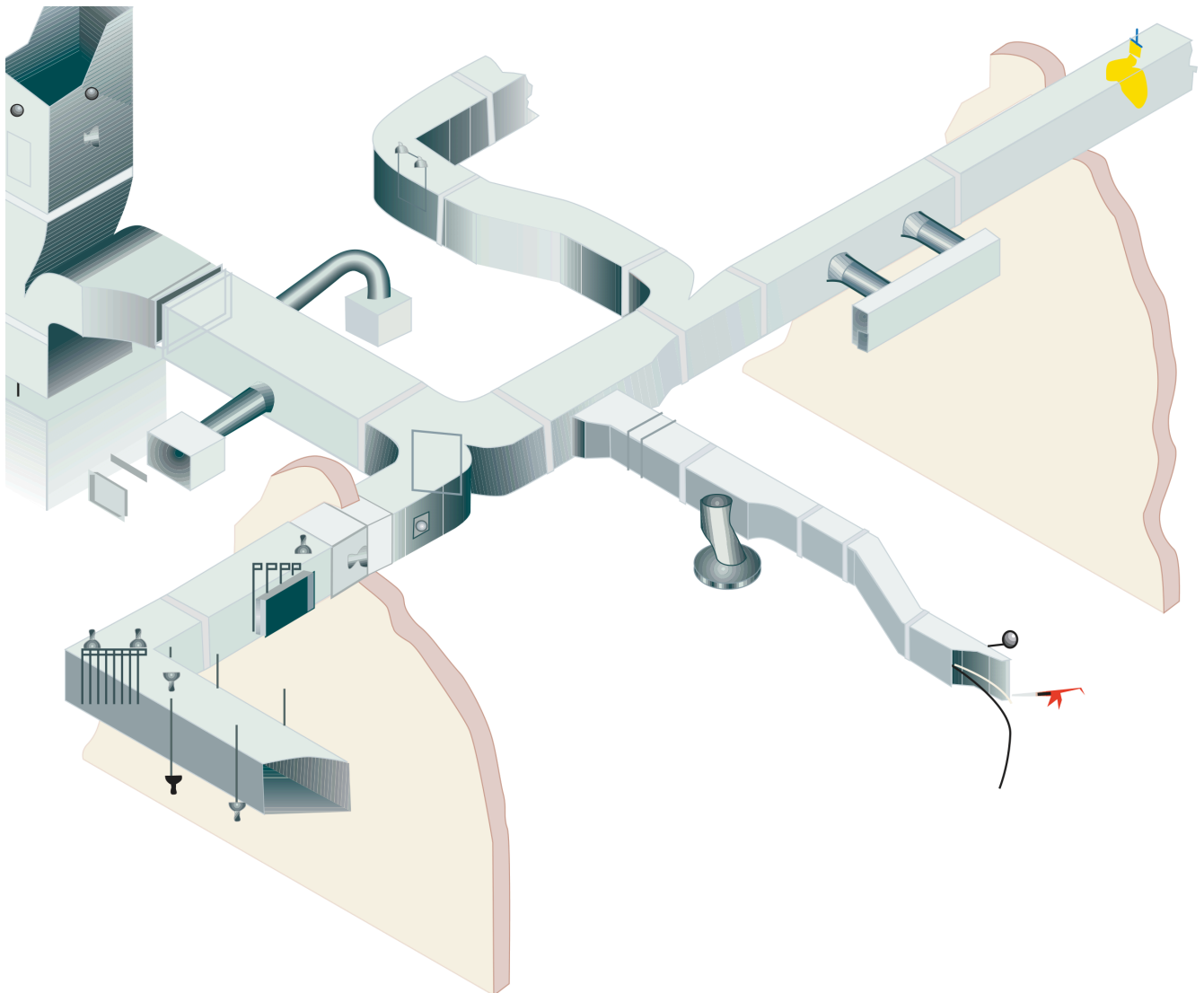
10 Logistics

Easy freight by its light structure and delivery in packages. It can be manufactured and mounted in accordance with site and project conditions, so the risk of finished duct transportation is removed.

SYSTEM

Self insulated air duct system

A complete run built from NKS panel: main ducts, branches, transitions, dampers and diffusers, assembled with hidden flanges.

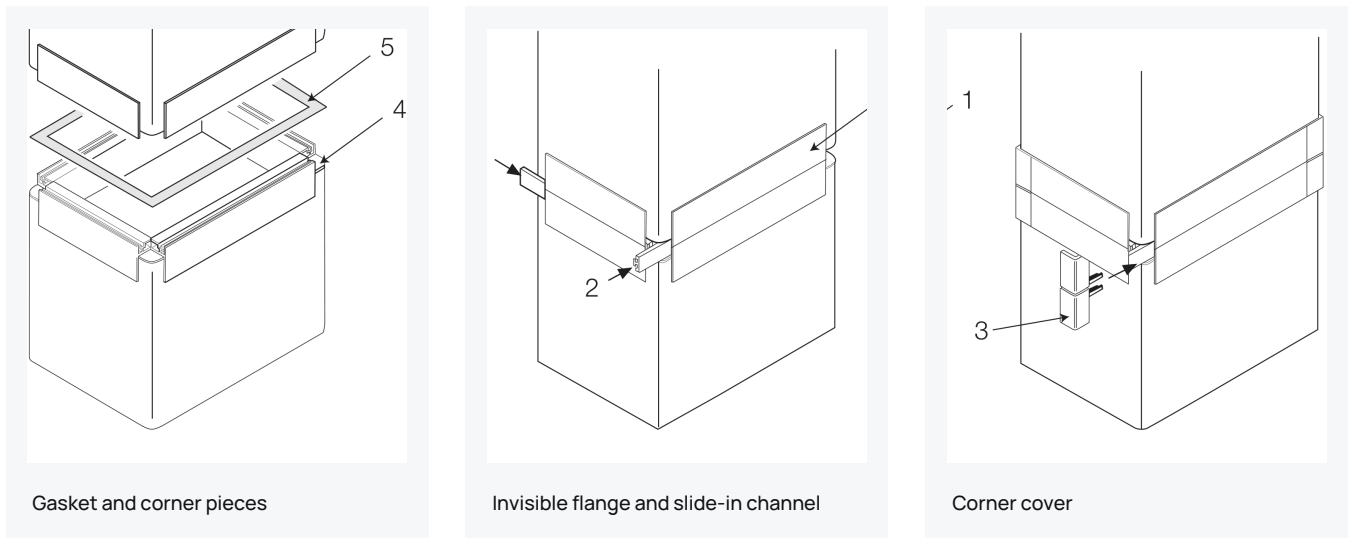


Maintenance and operation

- Do not require any maintenance through long ages.
- Aluminum folio on panels does not corrode in due course.
- It doesn't hold any particles and preserves the first-day conditions.
- It carries the air healthfully.
- Demounting and mounting the duct is easy in particular maintenance and repairing situations.
- Maintenance is easy due to its light structure, where as it does not place static loads on the system.

Assembly forms

The assembly accessories ensure a quick and accurate process. The hidden flanges used on junction points are assembled by a single PVC profile.

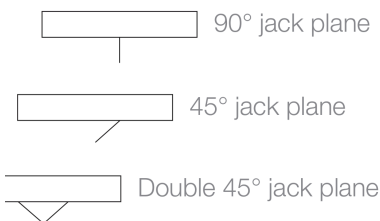


Assembly

The assembly accessories used for NKS systems ensure quick and accurate assembly. Aluminum profiles can be used. According to EN 1507, the value of the tightness in ports is higher than the classical style of air duct. NKS panels can be mounted easily and swiftly by means of a weight 7 times less than that of sheet metal ducts.

They can be processed under site circumstances. It enables to reduce labor, insulation materials and manufacturing costs, whereby not requiring any extra insulation.

Cutting

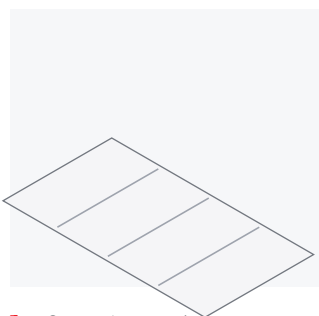


Three jack plane profiles are used: 90°, 45° and double 45°. The cut follows the fold line of the finished duct, so the panel is scored once and folded into shape.

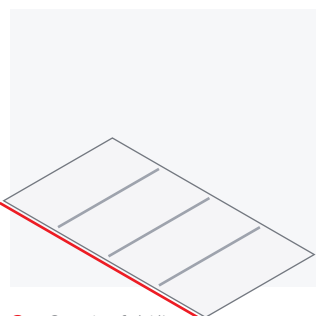
STEP BY STEP

Assembling steps

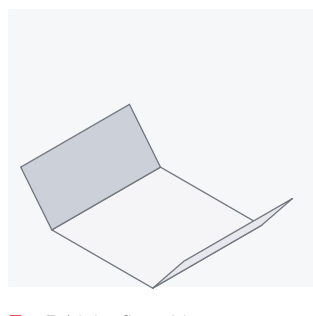
A tool box and a large table are enough. The panel is scored, folded, closed and taped on site.



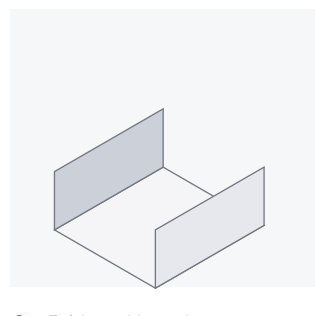
1 Score the panel



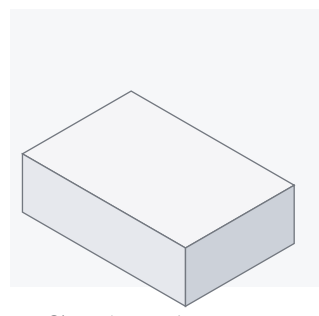
2 Cut the fold lines



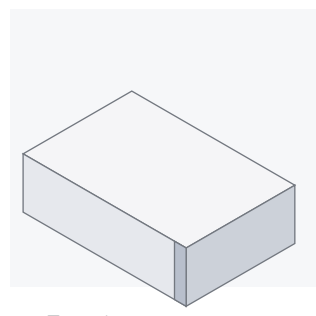
3 Fold the first sides



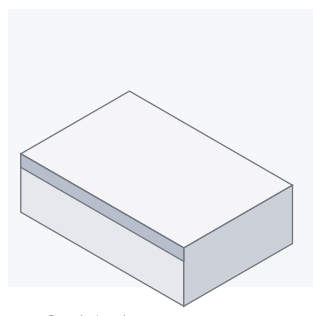
4 Fold to a U section



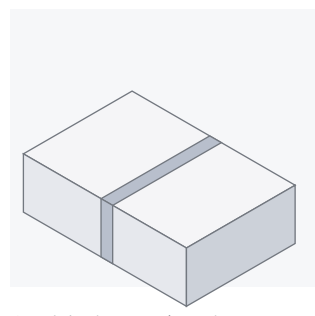
5 Close the section



6 Tape the corner



7 Seal the long seam



8 Join the next length

Comparison of thermal properties

Material	Thickness mm	Heat transfer coefficient W/m°C	Heat resistance Sqm/m°C/W	Total heat resistance	Thermal cond. coefficient (K)
Galvanised sheet	0,80	52	0,00015	0,165	6,060
Extruded polystyrene	8	0,033	0,242	0,407	2,454
Glass wool	25	0,038	0,658	0,823	1,215
NKS panel	20	0,0194	1,031	1,196	0,836

GET IN TOUCH

Ask for a quotation

Tell us the duct run, the sizes and the pressure class; our technical sales team will come back with a specification and a price.

ADDRESS

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