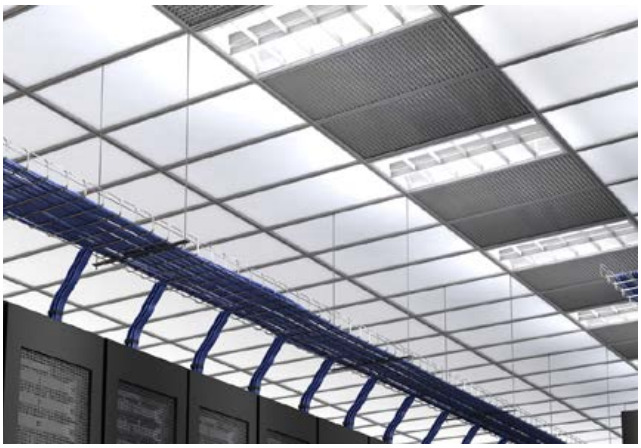
Data & Flooring Technology
UK & Europe

Data Centre Interiors
Systems and Solutions Guide

Airflow and Access Flooring / Structural Ceilings / Hot & Cold Aisle Containment



Kingspan®

Floor-to-ceiling Data Centre Solutions

For more than 50 years, Tate has been recognised worldwide as an industry leader in the research, development and manufacture of data centre interior infrastructure solutions. Whether it's providing airflow panels or structural ceilings – we have built our business on a passion for making the data centres of tomorrow, more affordable, efficient, flexible and sustainable.

The modern data centre environment needs to be a highly adaptable space that provides the ability to respond quickly and easily to client, organisational and technological changes – all while being cost-effective in both construction and operation.

The inclusion of a Kingspan access floor system in your data centre is still the most effective and reliable method of addressing all the demands of today's ever evolving data centres while still meeting the everyday needs of its users in a secure and reliable environment.

Ceilings

Tate Grid

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Access Floors

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EN 12825
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Airflow

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Containment

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Carrying the load with confidence

Structural Ceilings

Tate

Tate Grid is the ideal ceiling solution for any application where large or heavy items need to be suspended within a building. Replacing custom-built on-site structural support systems with Tate Grid can offer many advantages including the ability to fully design and specify the support solution in advance. It is also less expensive and faster to install. Tate Grid is an easy-to-install single solution that delivers both cost savings and improved flexibility throughout the lifetime of the installation.

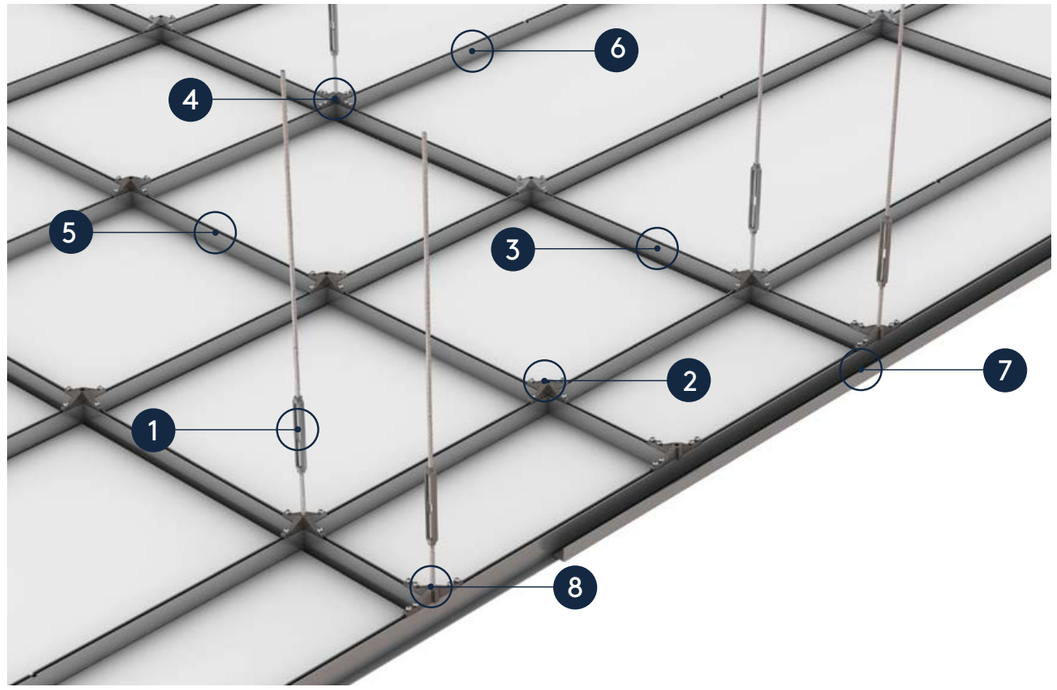
Ultimate performance

Tate Grid is an easy-to-install single solution that delivers both cost savings and improved flexibility throughout the lifetime of the installation. Tate Grid is a series of components, expertly designed and manufactured, that together form a structurally sound ceiling system capable of carrying a point load of 1.7kN and uniform load of 2.4kN/m2.

Tate Grid removes the need to penetrate the acoustic ceiling, eliminating any threat from falling debris that can potentially damage electrical equipment.

Maximum benefits

- Tate Grid is faster and easier to install than other data centre ceiling systems
- The component system is adaptable to the specific requirements of each data centre removing the need for a bespoke designed structure
- Tate Grid is highly cost effective vs. custom built designed solutions
- Eliminates the need for multiple trades on-site
- Experienced data centre product manufacturer and contracting teams



An adaptable component system

A pre-engineered, factory produced aluminium structural ceiling grid with continuously threaded slot. Consists of main runners and structural tees connected by die cast aluminium Field Connectors and XL Connectors. Capable of supporting power modules, cable trays, partitions and other data centre infrastructure components.

1. Turnbuckle assembly
2. Field Connector
3. 3.6m main runner (field cut at perimeter)
4. XL Connector at main runner splice
5. Optional 600mm tee
6. 1200mm structural tee
7. Floating perimeter
8. Perimeter Connector

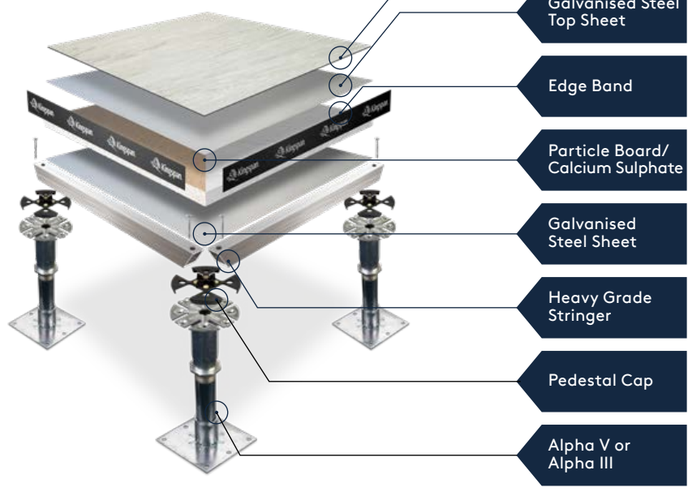
Delivering flexibility for a fast paced environment

Raised Access Flooring

The perfect data centre environment requires the ability to handle a large number of data cables, to efficiently handle high heat loads that are variable and diverse and to adapt for future technological and cooling advancements. Our access floor systems address all of these needs in a highly adaptable space that provides the ability to respond quickly and easily to client, organisational and technological changes. They achieve all of this while being cost-effective in both construction and operation. With our raised access flooring solutions, you'll be able to address all of the demands of a data centre while meeting the everyday needs of its users in a secure and reliable environment.

No two data centres are the same. For help planning yours contact our experts **+353 1 685 6518**

High performance access floor systems



With proven quality tested to the most rigorous standards of the PSA MOB PF2 and EN12825 our access floor panels are manufactured with either a high performance particle board or calcium sulphate core and top and bottom galvanised steel sheets. A full depth edge band protects the high pressure laminate surface finish.

The system is robustly designed for the rigors of the data centre environment and to work in harmony with our Airflow grille range.

Designed for the data centre

PSA	Uniformly Distributed Load	Concentrated Load	Safety Factor
Heavy Grade	≥12kN/m²	≥4.5kN	3x
Extra Heavy Grade	≥12kN/m²	≥4.5kN	3x
EN 12825	**Ultimate Load**	**Point Load**	**Safety Factor**
Class 5	≥10kN	5kN	2x*
Class 6	≥12kN	6kN	2x*

*3x Safety Factor Can Be Achieved.

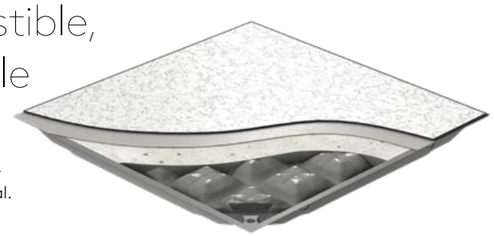
Delivering an ultimate load capability in excess of 12kN, our heavy grade access floor panels are tested to European standards and are available with either a wood or calcium sulphate core.

Topped with a high pressure laminate finish these loose lay systems are perfect for a changing data centre environment where access to the underfloor void is regularly required.

ConCore®

Non-combustible, rigid & durable

All steel welded panel filled internally with a cementitious, non-combustible core material. Protected from corrosion by a powder paint finish. Surface can be finished with a high pressure laminate.



Tate®

Delivering the ultimate in strength, durability and acoustic performance and available in 6 grades:

- ConCore® 1000
- ConCore® 1250
- ConCore® 1500
- ConCore® 2000
- ConCore® 2500
- ConCore® 3000

Improve data centre efficiency and capacity

Directional Airflow Flooring

Tate

Our range of directional and vertical airflow panels cater to all your data centre cooling needs. Cost-effective and energy-efficient airflow panels offer compelling returns on investment and lower operating costs in both new build and retrofit applications.

Virtual containment uses a set of solutions to deliver the right amount of air when it's needed, directly to the equipment. This is accomplished using directional airflow panels, control devices and doors at the end of the aisle to nearly eliminate bypass air, providing containment without the need for a roof.

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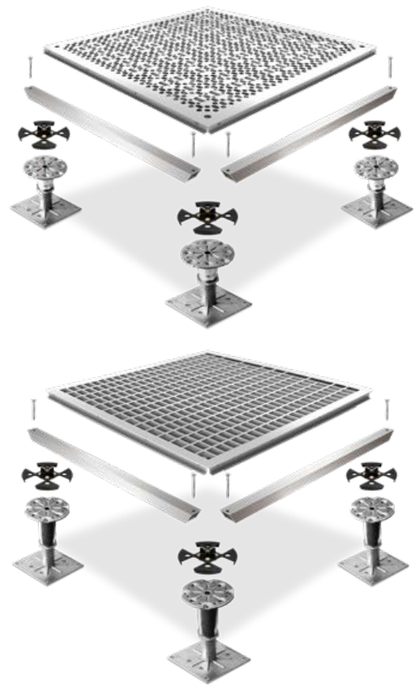
DirectPerf/ DirectAire

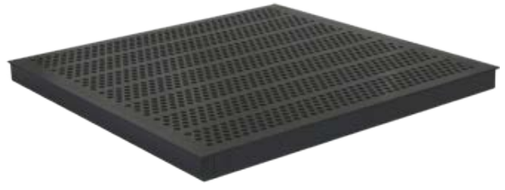
Twice the cooling capacity of standard airflow grilles

In non-enclosed rooms, DirectPerf 32% offers almost the same cooling capacity as a standard 56% open area grating, using about half the air flow thanks to the directionality of the grille. DirectAire also uses this patent-pending technology to angle the air towards the unit to achieve a 93% capture index. DirectAire is designed to distribute airflow evenly across the full height of a standard 42U rack.



Steel Ventilation Grilles

High Volume, Heavy Duty Airflow panels



The standard dimensions of the steel ventilation grilles is 600 x 600mm. Special panel formats and heights deviating from the standard can be manufactured on request. The grilles are of steel or stainless steel construction, and can be powder coated or galvanized upon request. A wide range of loading capabilities and open areas are available.

Opposed Blade Damper

Efficiently regulate airflow volume across multiple zones

Field-mounted dampers are attached to the bottom of the airflow panel. The drop-in damper design is for use with DirectAire and DirectPerf grilles and allows for easy retrofit.

Maximise data centre performance

Hot/Cold Aisle Containment

With a Hot-Aisle Containment system, your data centre's hot aisle is enclosed within a physical barrier. This allows the discharge air from your facility's IT equipment to be returned directly to the cooling equipment through a ceiling plenum or ductwork, while the cooled air is introduced directly into the data center through a raised floor, directly into the room through the AC units, or through ductwork.

By containing the hot air, you can improve the cooling efficiency, control energy costs by allowing for lower AC fan speeds, and improve the overall comfort of technicians working within the data centre itself.

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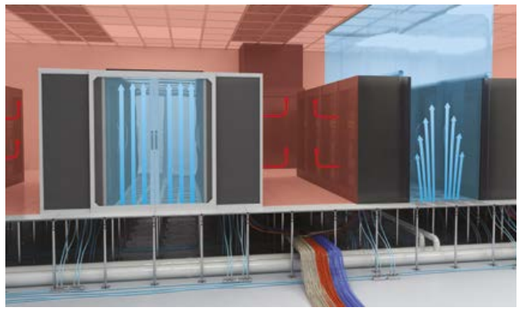
Benefits of aisle containment

Hot aisle containment can dramatically increase the effectiveness of your data centre's cooling capacity. When your data centre's hot exhaust air is kept separate from the rest of the room, you ensure that the conditioned air is more easily cooled and the exhaust air remains both hot and dry as it returns to the main AC coil. This process increases AC cooling capacity, and can double the cooling capacity of your CRAC/CRAH.



Doors

Single hinged

Our single hinged door is the leading solution for aisle ends of hot aisle containment configurations. The pre-assembled aluminium design with lift off hinges allows for quick and easy installation. With a standard right or left hinge option, the doors can be custom-built to suit your particular data centre requirements. Viewing panels are designed with multiwall polycarbonate.

Partitions

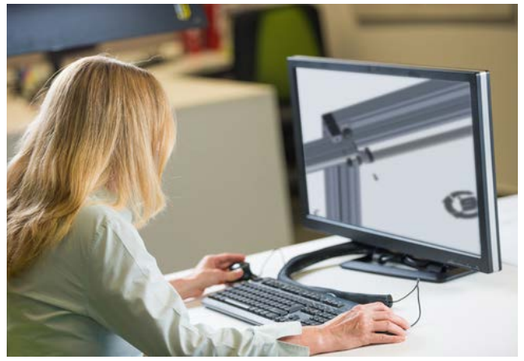
Rack to ceiling & floor to ceiling

Our partitions, comprising of HAC (rack to ceiling) and walls (floor to ceiling) are a comprehensive alternative to traditional soft partitions. Constructed of aluminium, with several finish options, the partitions can be customised to seal numerous gap sizes and areas. Designed to be used in either hot or cold aisles, partitions are custom-sized for every job to ensure air leakage is minimised. Lightweight, cost effective and attractive looking, partitions come pre-assembled with supplied brackets for quick and easy installation.

Support

Custom Solutions

Unique solutions for your unique data centre



No two data centre facilities are the same. That's why we provide custom engineering and manufacturing for all of our data centre containment and structural ceiling systems; giving you the solutions you need for your facility – not a one-size-fits-all approach.

We are the leading manufacturer of data centre solutions, and our manufacturing process allows for the customisation of containment and structural ceiling products to fit the needs of your specific facility.

Our world-class manufacturing plants have the flexibility to create modular solutions quickly with up-front cost optimisation and Tate's in-house engineering team has the experience and industry knowledge to design the best solutions and guide your project from concept to completion.

Product Samples

There's no substitute for the real thing

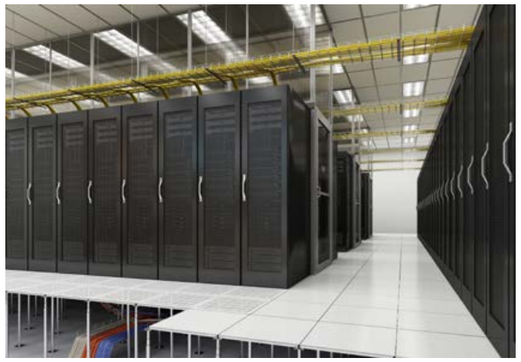
We understand that you need to get hold of physical samples for products you plan on incorporating into future data centre projects. The need to evaluate constructability and overall quality is one that simply can't be met with a brochure and images on a website.

Standard samples are manufactured, prepared and assembled with care by a dedicated team of sample technicians based in manufacturing facilities. Each sample is then individually boxed and stored in preparation for shipping.

Custom product samples and mock-ups may also be available depending on material requirements. Your regional sales manager is happy discuss the various sample types and customised options we offer.

Project Support

Whatever you need, we can help



Whether it's design assistance, post-project maintenance advice, or anything in between, our customers can count on Kingspan for assistance throughout every phase of their project. We're more than just a manufacturer. We're a partner.

Technical Services

Our Technical Services Team provide a comprehensive advisory service to assist engineers, architects and installation contractors with data centre design, detailing and installation assistance including:

- Product details and material specifications
- Installation and maintanance advice
- Information on data centre airflow management
- Building code compliance
- Construction details and best practices
- Testing requirements
- Production certification and declarations

Design Assistance

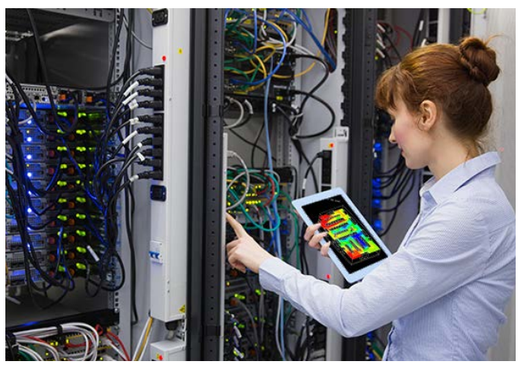
Tate offers design assistance services for every phase of your project, beginning with cost model analysis to provide concrete data on how design changes impact various cost and performance factors, allowing design teams to make more informed upfront project decisions. We then also work extensively with the engineers and architects to overcome your unique design challenges and create both shop and fabrication drawings.

Technical Documents

From product data sheets, details, and specifications to detailed installation and maintenance guides, Tate offers easy access to the technical documents you need to specify your project quickly and accurately.

Data Centre Auditing

Discover the airflow potential of your data centre



Modern data centre environments are dynamic and constantly evolving. With rising energy costs and increasing loads, data centres are continually stretched to their limits. We offer a free pre-qualified data centre airflow analysis for raised floor data centres where we partner with you to pinpoint the key issues impacting your specific data centre and offer energy efficient, cost effective solutions.

Key Benefits

- Measurable improvements in operational and capital costs
- Establishes best practices
- Extend capacity and prolong data centre life
- Plan for future technology changes

High performance data centre solutions

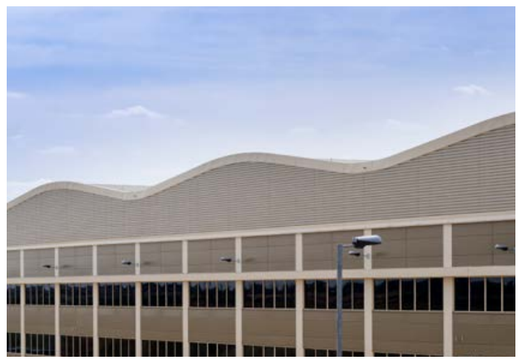
from across the Kingspan Group

Kingspan is the leading manufacturer of a comprehensive range of data centre systems and solutions.

Kingspan divisions can offer you a range of additional options to enhance data centres or large buildings with internal data centres.

Our teams throughout the Kingspan business will work together to bring you a seamless solution for your project.

Kingspan Light + Air
High performance LED lighting systems for data centres.

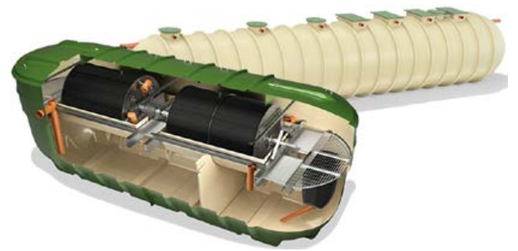


Roof systems
Insulated roof panel systems, roof systems and height safety systems.

Internal walls & ceilings
Fire rated internal compartmentation wall and ceiling systems.

Solar PV systems
Roof mounted PV solutions specifically designed for data centres.

Architectural Façade Systems
Insulated architectural wall panel systems and insulated façade systems.



Wastewater management
Efficient wastewater treatment solutions.

Smoke Control & Ventilation Systems
Natural, mechanical and smoke pressurisation solutions suitable for data centres.

Ductwork & pipework
Insulated ductwork and insulation for pipework within data centres.

Secondary steelwork
Purlins, rail and channel systems to suit all types of data centre roof construction.

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