

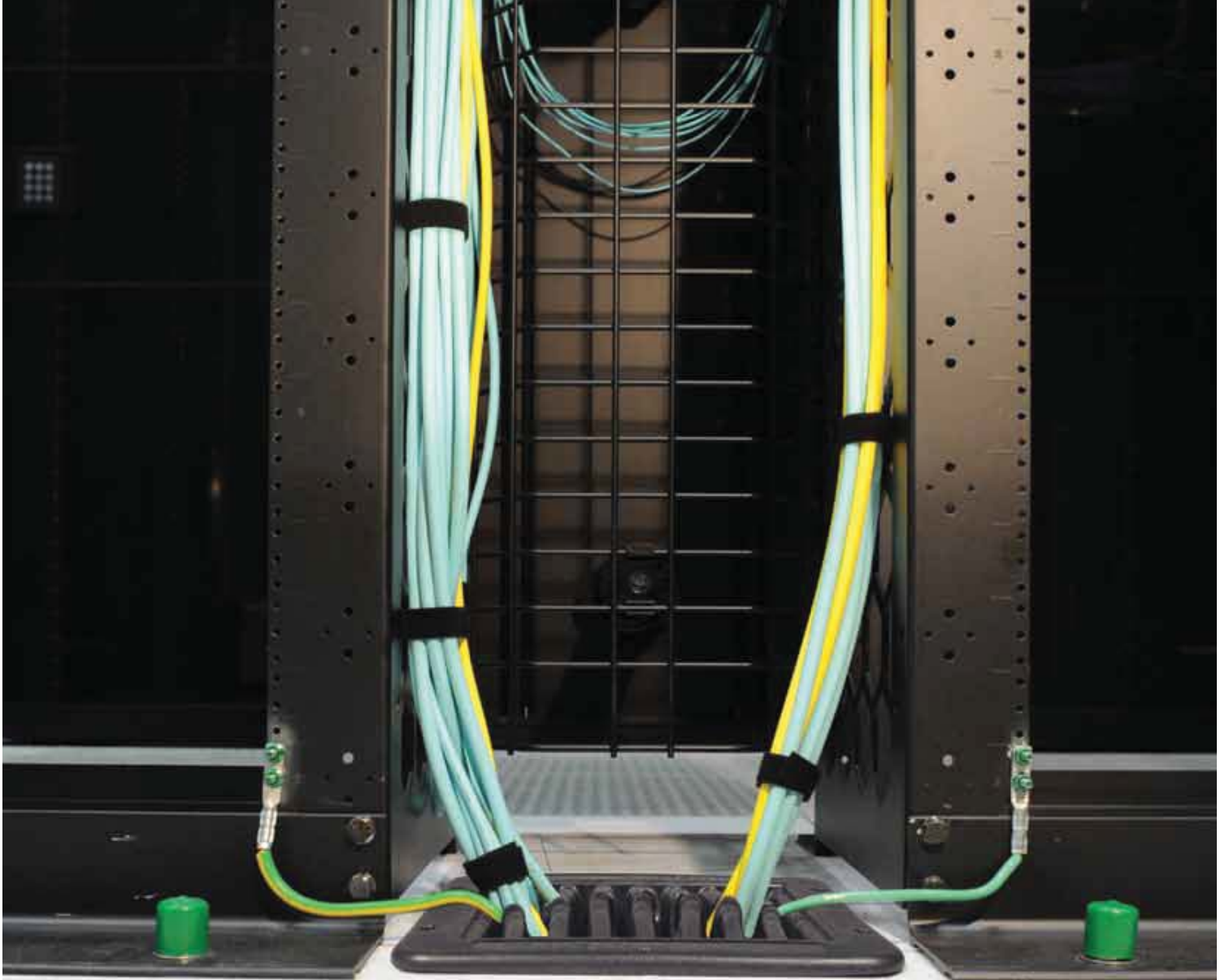


Tate® **KOLDLOK**®

Improving Data Centre Efficiency



Tate®



Controlling Bypass Airflow in your Data Centre

Bypass airflow can have a significant impact on the cooling capacity and efficiency of any data centre. One key part of best practice design for raised floor data centres includes the elimination of bypass air. Bypass air is any air delivered into the data centre that is not consumed by the equipment and exhausted as waste heat. Common practices to reduce bypass air include the use of containment systems, blanking panels, angular or directional air delivery, and air sealing grommets for all wire and cable penetrations in the floor.

Partnering to Provide Tate KOLDLOK

Tate has partnered with Upsite Technologies the makers of KOLDLOK to bring you the most advanced wire & cable penetration air sealing grommet available. This partnership was forged from the common understanding that the raised floor design is the most cost-effective and flexible way to future proof a data centre. With raised floors a data centre can handle large volumes of wires, cables and other services, while efficiently cooling the heat loads of modern and next generation designs.



Advantages of a Raised Floor

- Easily adapt to technological and client changes over the data centre's life-cycle at low cost.
- Offers the best overall solution for distributing water and other liquid cooling agents to row and rack based equipment.
- Water distribution lines placed under a raised floor pose less threat in the event of water leaks or condensation due to system failure.
- Provides the ability to separate water, power and cable.
- Ability to terminate cables wherever you need them with complete flexibility, accessibility, and unlimited capacity.
- Reduced operating costs and lower facility and maintenance costs through accessible, flexible, and adaptable services.
- Underfloor service distribution space keeps the interior space clean and neat for proper air migration in-and-out of equipment.
- Raised floors provide the platform for future scalability.
- Ability to accommodate a range of cooling solutions while increasing efficiency and heat load capacities.
- Flexibility to incorporate the most energy efficient design opportunities for cooling data centres.

Benefits of Including Tate KOLDLOK in Design

Standardization Ensures Quality and Saves Time

Saves Time & Eliminates the Mess

Tate has identified a standard cut-out location that works with any rack to ensure that the cutout is always in the proper location inside the back door. The location is 102mm from the edge of the panel and centred. When specified as a factory cut-out, both the time and mess associated with field cutting is eliminated.

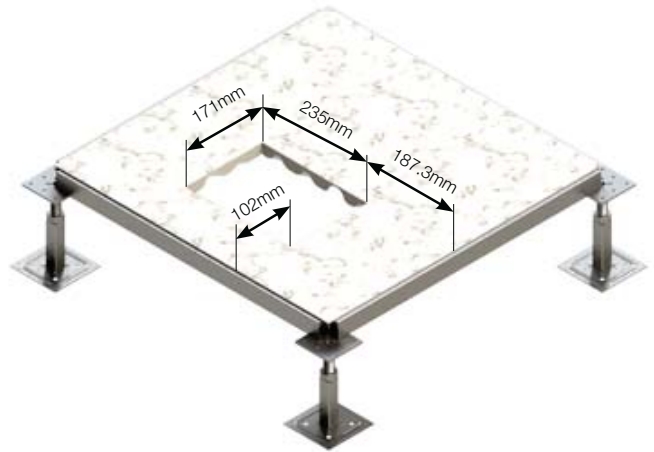
Easy to Install & Relocate

With the Tate KOLDLOK installing cutouts during the initial build is easy and cost effective. Tate KOLDLOK air sealing grommets are available with domed lids that keep equipment from being rolled over them. These lids allow the raised floor installers to place the cut-out in the floor as they build-out the facility. The Tate KOLDLOK grommet's can be precisely position in relationship to the airflow panels or placed in a special holding area of the floor to later be moved into the final position as equipment is deployed.

Furthermore since this location works with any size rack the cut-outs can be stored in reserves at your facility for future moves/adds/changes.

Improve Efficiency, Capacity & Performance

Using Tate KOLDLOK air sealing grommets will help improve data centre efficiency, capacity and cooling performance. With the ability to use a factory cut in a standard location to supply wires and cables to any size rack provides the opportunity to specify the use of this seal during the design phase. By specifying the use of these seals the architect and owner can have the confidence that they are using the best performing grommet in the industry and not a poor performing imitation. Existing facilities and data centre expansions will likewise benefit from the superior sealing ability of the Tate KOLDLOK.



	600mm x 1200mm Rack	700mm x 900mm Rack	600mm x 1000mm Rack	800mm x 1200mm Rack	600mm x 1200mm Rack				

The figures above shows examples of some common racks currently available on the market. The blue box represents the location of the cut-out seal in the back of the rack when using Tate's standard location. This standard location will also work with virtually any rack dimension or position.

Tate KOLDLOK

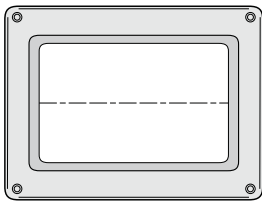
Improved Air Sealing Performance

The Tate KOLDLOK air sealing grommet is designed to prevent air leakage from the underfloor plenum where penetrations in a raised floor are needed to deliver power, data and other services to equipment above the floor. Tate KOLDLOK is a 200mm x 280mm injection moulded ABS plastic grommet designed to mount in a raised floor panel. Supplied with an optional rigid lid capable of supporting up to 115kg this grommet is designed to be installed at the same time as the raised floor. The interior crenulated design provides a superior seal over other brush style grommets improving air sealing performance and saving energy.

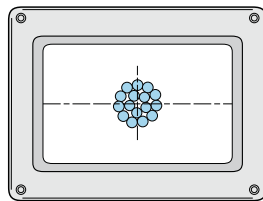


Tate KOLDLOK L/s Leakage Comparison at 12.5 Pascals

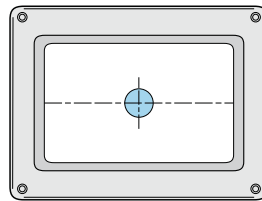
	Open Area Available	No Penetrants	Bundle of 32 Cables	1x14mm Power Cables	4x14mm Power Cables
Brush Style A	92.3cm ²	0.2	1.75	1.12	1.88
Tate KOLDLOK	225.8cm²	0.03	1.02	0.18	0.55



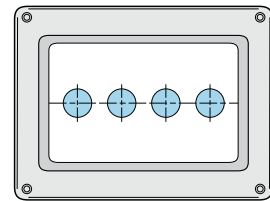
No Penetrants



Bundle of 32 Network Cables



1x14mm Power Cables



4x14mm Power Cables

The example below provides an example of the energy associated with sealing cutouts in a 929m² data centre. The Tate KOLDLOK grommet can save over \$87,000 in annual energy costs associated with wasted bypass airflow.

Energy Model - Cutout Sealing 4x14mm Power Cables

	No Cutout Seal	Tate KOLDLOK
Data Centre Size	929m ²	929m ²
Number of IT Racks	500	500
Number of Cable Cutouts	500	500
L/s Leakage Per Cutout	185	0.55
Total L/s Leakage	92512	274
kW/kL/s Fan Energy	0.64	0.64
Power Wasted (kW)	125.4	0.4
Energy Wasted Annually (kWhr)	1098854	3252
Cost per kWhr	\$0.08	\$0.08
Annual Energy Cost	\$87,908.32	\$260.16

Full Line of KOLDLOK Air Sealing Grommets

Standardization Ensures Quality and Saves Time

Tate is also the exclusive provider of all KOLDLOK grommets in the raised flooring industry. We offer both surface mount and flush mount designs in various sizes to meet the specific sealing needs of any data centre. The Grommets satisfy NFPA 75 Section 5-4.4 requirement by self-dressing the raw metal edges of raised-floor tile cable cutouts. They are also compliant with the directive that restricts the use of certain hazardous substances in electrical and electronic equipment (RoHS).

Integral

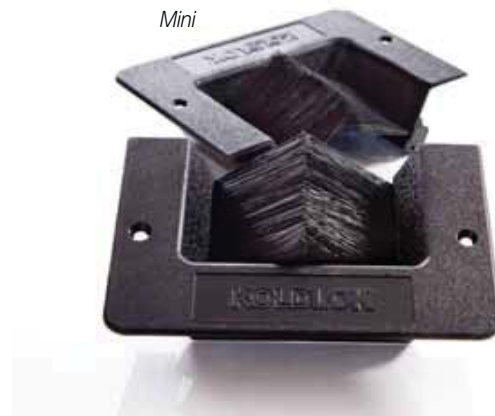
The Split Integral Grommets allow tiles to be moved without capturing cables. This grommet is designed to seal cable openings in new raised-floor systems prior to the installation of communication or power cabling. The large 206 square cm usable cabling area accommodates a variety of cabling requirements.



Integral Grommets	US unit of measure (Inches)	Metric (mm)
Usable Cable Area	8 x 4	203 x 102
To install Grommet in interior of the tile	9 1/4 x 6 3/4	235 x 172
To install long side of the Grommet on the tile edge	9 1/4 x 7 1/2	235 x 191
To install short side of the Grommet on the tile edge	10 1/8 x 6 3/4	235 x 172

Mini

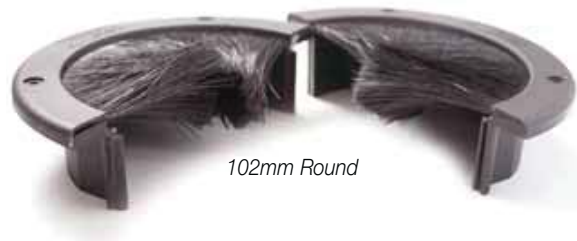
Designed to seal small cable openings in the raised floor of new or existing computer rooms. The 127mm x 64mm opening offers flexibility for data centres that have multiple cable opening sizes. This grommet offers a cost-effective method of separating data cabling from power cabling.



Mini Grommets	US unit of measure (Inches)	Metric (mm)
Usable Cable Area	5 x 2 1/2	127 x 64
To install Grommet in interior of the tile	4 x 6	102 x 152
To install long side of the Grommet on the tile edge	5 x 6	127 x 152
To install short side of the Grommet on the tile edge	4 x 7	102 x 179

Round

The Split feature of the KOLDLOK Round 102mm allows product installation or removal without disturbing cables. Designed to seal openings in new and existing raised floor cutouts to block bypass airflow and maximize cooling system efficiency.



Integral Grommets	US unit of measure (Inches)	Metric (mm)
Usable Cable Area	4	102
Maximum cutout size sealed	9.6 sq.in.	619 sq.mm.

Surface Mount

Designed to seal a variety of existing raised-floor tile cutouts and allow the flexibility of removing tiles without capturing cables. Available in three different length and width dimensions to allow for larger sealing capacities. The Grommets integrate with the raised-floor static dissipation system, providing 1 GigaOhm of resistance.



Mini Grommets	US unit of measure (Inches)	Metric (mm)
Usable Cable Area	10 x 7	254 x 184
Maximum cutout size sealed	8 x 4	210 x 102

Extended

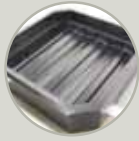
Designed to seal a variety of existing larger openings, with the added flexibility of modification for unique openings. The Grommets can be modified to seal unique cable openings and other open areas such as gaps around CRAC & CRAH units.



Mini Grommets	US unit of measure (Inches)	Metric (mm)
Usable Cable Area	22 x 2 1/2	127 x 64
Maximum cutout size sealed Item	24 x 4	102 x 152

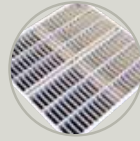
Additional Data Centre Products

Visit www.tatetasman.com.au for more information



SmartAire

VAV damper to automatically control airflow at the rack level improving energy efficiency.



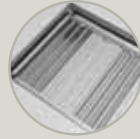
DirectAire

68% open area all steel panel that angles airflow to achieve a 93% TAC rate.



PowerAire

Fan assisted airflow at the rack level for handling extremely high & diverse heat loads.



Multi-zone Opposed Blade Damper

3 zone damper for balancing airflow to individual 14U sections of a rack to save energy.

Tate[®]

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