



Tate® **KOLDLOK**®

Improving Data Center Efficiency



Tate®

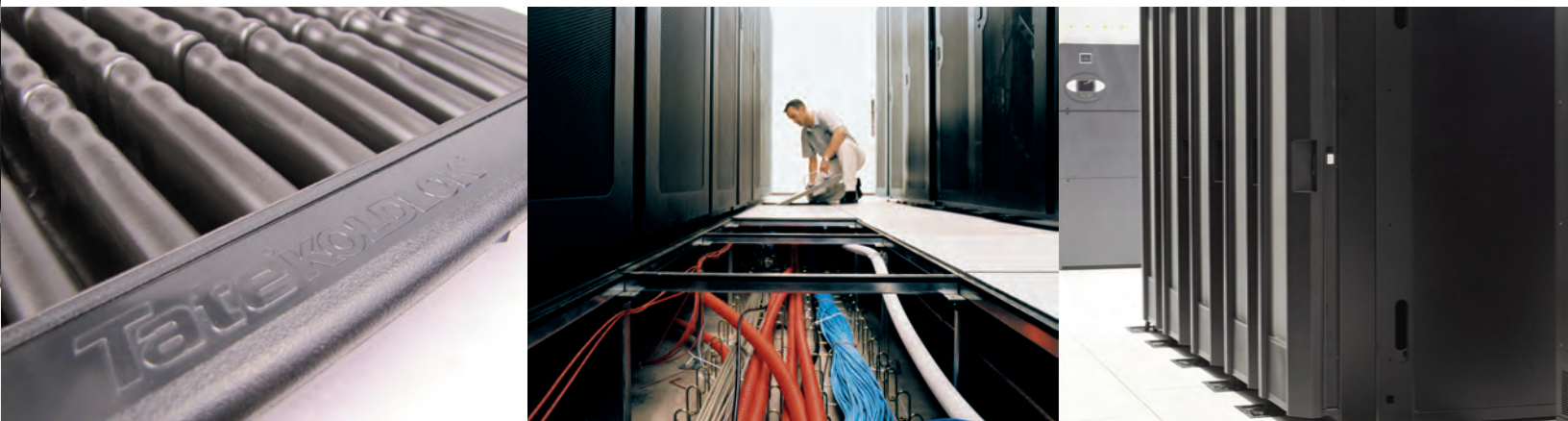


Controlling Bypass Airflow in your Data Center

Bypass airflow can have a significant impact on the cooling capacity and efficiency of any data center. One key part of best practice design for raised floor data centers includes the elimination of bypass air. Bypass air is any air delivered into the data center 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 center. With raised floors a data center 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 center'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 centers.

Tate KOLDLOK

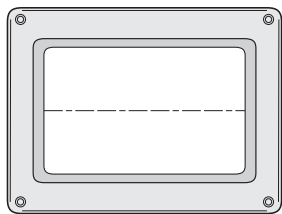
Improved Air Sealing Performance

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 8.75"x11" injection molded ABS plastic grommet designed to mount in a raised floor panel. Supplied with an optional rigid lid capable of supporting up to 250lbs this grommet is designed to be installed at the same time as the raised floor. The interior crenellated design provides a superior seal over other brush style grommets improving air sealing performance and saving energy.

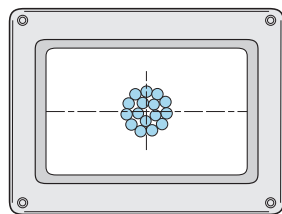


Tate KOLDLOK CFM Leakage Comparison at .05" Static Pressure

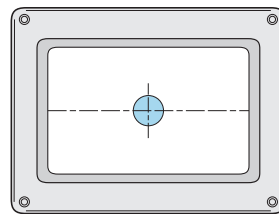
	Open Area Available	No Penetrants	Bundle of 32 Cables	1x9/16" Power Cables	4x9/16" Power Cables
Brush Style A	14.3 sq.in.	0.43	3.7	2.37	3.98
Tate KOLDLOK	35 sq.in.	0.07	2.17	0.385	1.16



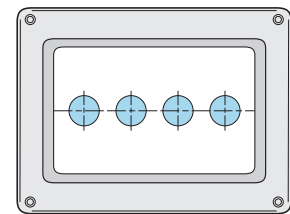
No Penetrants



Bundle of 32 Network Cables



1x9/16" Power Cables



4x9/16" Power Cables

The example below provides an example of the energy associated with sealing cutouts in a 10,000 sqft data center. In addition, you will see a comparison using a typical brush style grommet vs. Tate KOLDLOK. The Tate grommet can save nearly \$800 in annual energy usage. Visit our website to download an electronic version of this model to enter information specific to your data center.

Energy Model - Cutout Sealing 4x9/16" Power Cables

	No Cutout Seal	Brush Style A Cutout Seal	Tate KoldLok
Data Center Size	10,000 Square Feet	10,000 Square Feet	10,000 Square Feet
Number of IT Racks	500	500	500
Number of Cable Cutouts	500	500	500
CFM Leakage Per Cutout	392	3.98	1.16
Total CFM Leakage	196000	1990	580
kW/kCFM Fan Energy	0.64	0.64	0.64
Power Wasted (kW)	125.4	1.3	0.4
Energy Wasted Annually (kWhr)	1098854	11157	3252
Cost per kWhr	\$0.10	\$0.10	\$0.10
Annual Energy Cost	\$109,885.44	\$1,115.67	\$325.17

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 center. 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

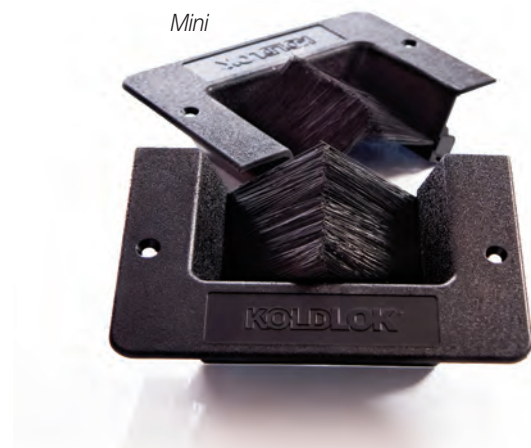
The Split Integral Grommets allow tiles to be moved without capturing cables. This grommet is designed to seal cable openings in new raised-floor systems prior to the installation of communication or power cabling. The large 32 square inch usable cabling area accommodates a variety of cabling requirements, including 100 amp power connectors.



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 5" x 2.5" opening offers flexibility for data centers 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 4" 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 Center Products

Visit www.tateinc.com for more information



SmartAire

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



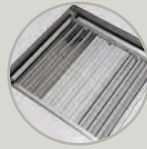
DirectAire

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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