



SmartAisle™

Energy-efficient use of existing cooling
power in data centers 1.50 to 1.58

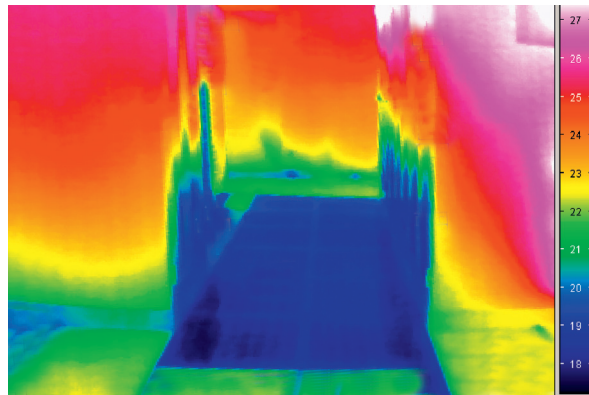




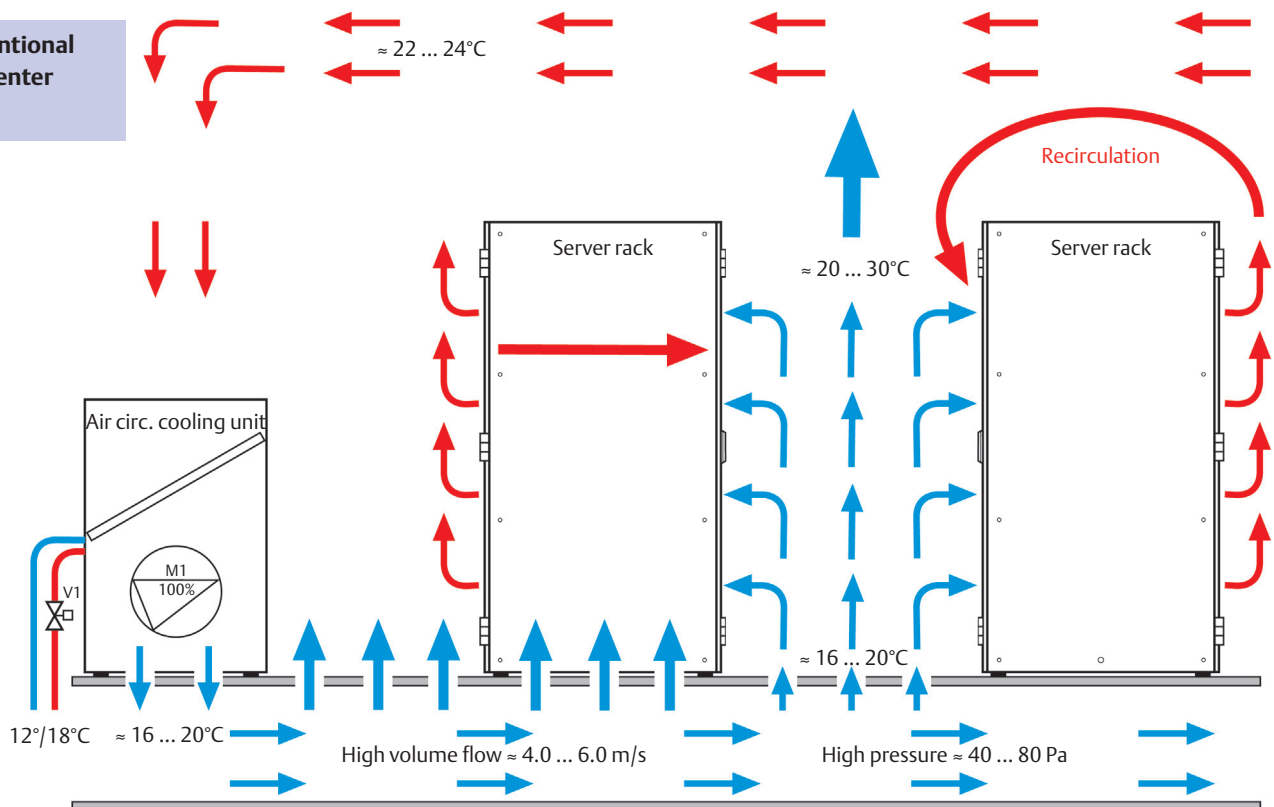
Emerson Network Power

Smart Aisle™

The consistent physical separation of cold zones from warm zones in the three areas – raised floor, rack and cold aisle containment – is the basis for the **SmartAisle™** principle used. This immediately reduces energy costs significantly. The room thermal management equipment must be regulated speed-dependent for a highly efficient operation (EC fans in the air circulation equipment provide the basis for this).



Conventional data center



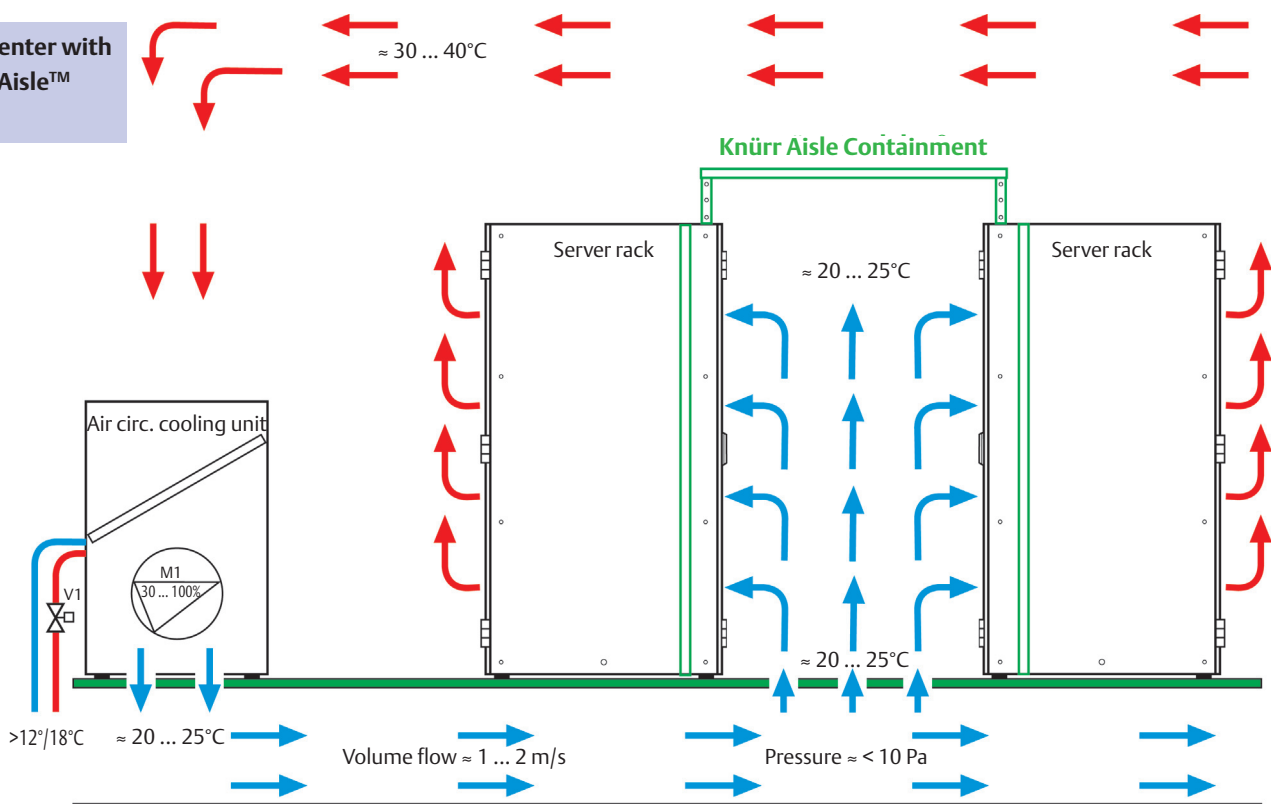
SmartAisle™ Strong points



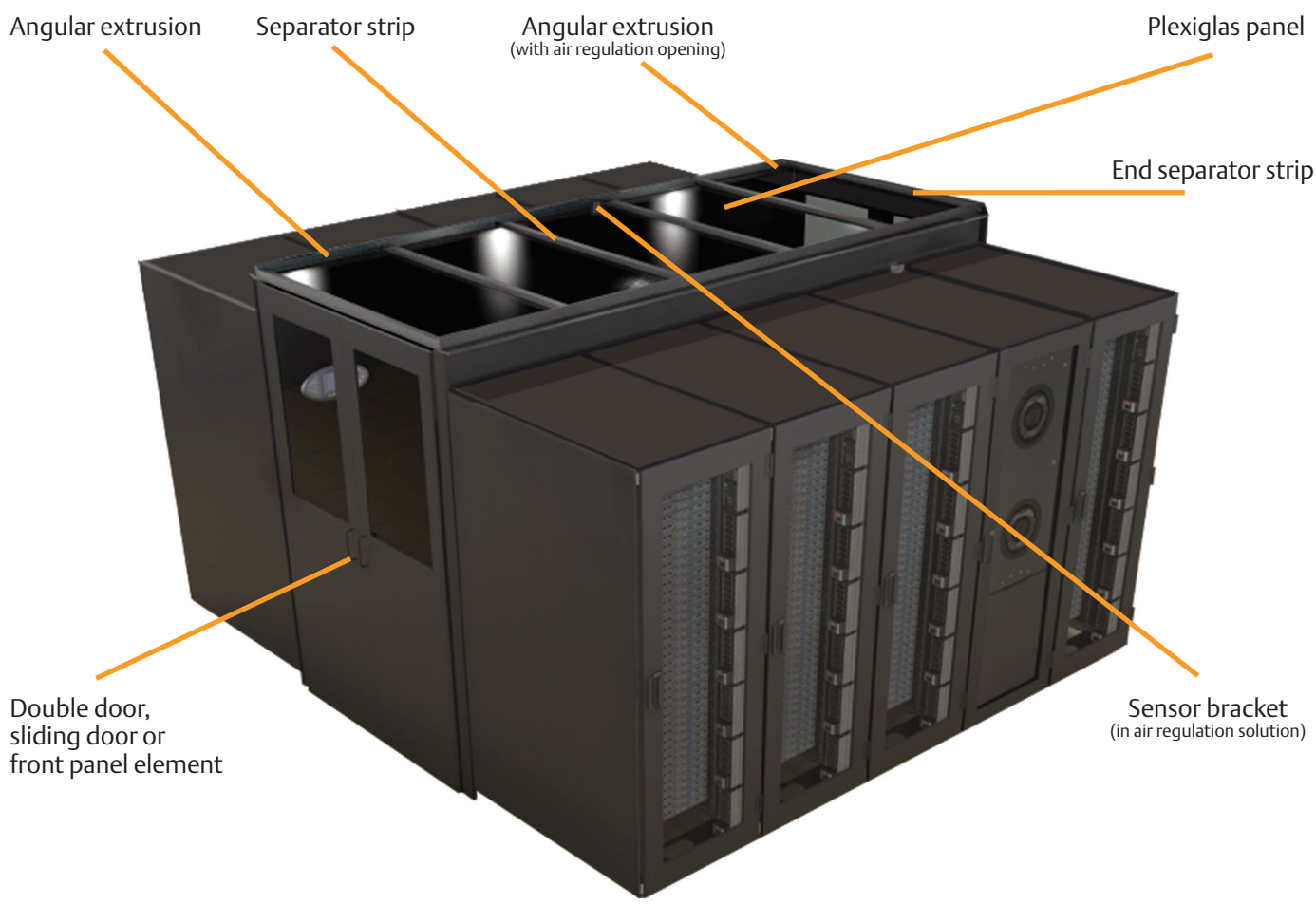
LUF20254

- The **benefits** of a containment over a conventional structure are:
- No hot spots (warm air recirculation from the warm aisle into the cold aisle; across the roof and across the front panels or through the rack)
 - Minimum possible energy costs for the CRAC units (especially with intelligent Knürr regulation)
 - Several servers can be installed
 - Raised floor doesn't have to be balanced out (which is difficult and would have to be done after every change in a conventional DC)
 - Any server positioning in the rack (with conventional DCs positioning above in the rack and at the front of the aisle are prevented)
 - Higher safety with increased CRAC unit redundancy (energy efficient 2n redundancy instead of n+1)
 - Safer with CRAC unit failure (longer bridging time)

Data center with
SmartAisle™
in use



Knürr Aisle Containment Components

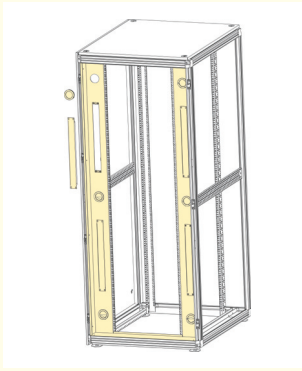


SmartAisle™ regulation principle

Until now the speed of the fans in the room thermal management equipment was regulated by the return air temperature, i.e. the temperature in the warm zone. The feed air temperature that the servers reached was, however, extremely important. The SmartAisle™ regulation principle uses the feed air temperature for regulating the circulated air cooling equipment.

In accordance with ASHRAE (American Society of Heating, Refrigerating and Air-Conditioning Engineers), the feed air temperature should be between 18°C and 27°C. This temperature cannot, however, always be guaranteed with the return air temperature. For energy efficiency reasons the feed air temperature should be selected as high as possible.

With cold aisle containment a higher cold aisle temperature can be selected so that a recirculation (or hot spot) is avoided.



LUF20233

SmartAisle™ air separation for 19" rack, fixed jumpering depth

- For separating the cold and hot areas in the rack
- Prevention of hot-spots (air recirculation)
- Quick and easy rack upgrading
- More 19" installation space: side panels, with additional 2 x 1 U each in the 19" vertical area
- Side panels with 3 cut-outs each for cable routing (covered as standard with rubber sleeve)

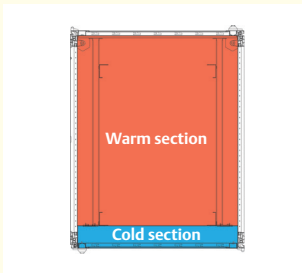
Material
Sheet steel

Finish
Final digit of order number .1: Powder-coated texture, RAL 7035 light gray
Final digit of order number .8: Powder-coated texture, RAL 7021 dark gray

Supply schedule
2 side panels (cut-outs covered)
2 panels, top/bottom
Mounting material

How supplied
Flat-packed kit

Note
Use only with server extrusions!



LUF20234

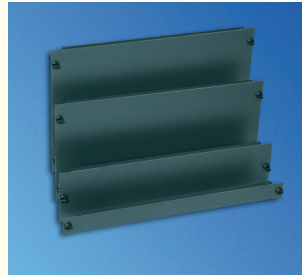
W	H	D	U	RT	For rack type	Order no.	UP
600	2000	41	85.5	Miracel	03.028.036.X	1 set	
700	2000	41	85.5	Miracel - asymmetric only	03.028.037.X	1 set	
800	2000	41	85.5	Miracel	03.028.038.X	1 set	
600	2200	46	85.5	Miracel	03.028.056.X	1 set	
700	2200	46	85.5	Miracel - asymmetric only	03.028.057.X	1 set	
800	2200	46	85.5	Miracel	03.028.058.X	1 set	
600	2000	41	123	Miracel	03.028.031.X	1 set	
700	2000	41	123	Miracel - asymmetric only	03.028.032.X	1 set	
800	2000	41	123	Miracel	03.028.033.X	1 set	
600	2200	46	123	Miracel	03.028.051.X	1 set	
700	2200	46	123	Miracel - asymmetric only	03.028.052.X	1 set	
800	2200	46	123	Miracel	03.028.053.X	1 set	

Dimensions in mm: W = Width
H = Height
D = Depth
h = installation height
d = useful depth
L = length

U = standard height unit
1 U = 44.45 mm
UP = unit of packaging
kg = weight

= Express item

Conversion: 1 mm = 0.03937 inch
1 kg = 2.2046 pound



MEC20180

19" Blanking Panel, QuickFix mounting without tools

- High-grade metal version
- For covering free 19" spaces (cold-hot separation)
- Quick and easy assembly without tools (one click) and disassembly (quarter turn)
- Suitable for 9.5 x 9.5 square holes

Material
Sheet steel, 1.0 mm

Finish
Final digit of order number .1:
Powder-coated texture, RAL 7035, light gray
Final digit of order number .8:
Powder-coated texture, RAL 7021 dark gray

Supply schedule
X (see ON for quantity) QuickFix
19" Blanking Panel
Mounting material

How supplied
In sets (see ON for quantity);
fixing clips pre-mounted

Note
You will also find threaded connection
19" blanking panels in our IT special catalog.



MEC20178

W	H	D	U	d	L	For rack type	Order no.	UP
482.6	43.6		1			Powder-coated	01.103.301.X	6 units
482.6	88.1		2			Powder-coated	01.103.302.X	3 units
482.6	132.5		3			Powder-coated	01.103.303.X	2 units
482.6	265.9		6			Powder-coated	01.103.306.X	1 unit
482.6	399.2		9			Powder-coated	01.103.309.X	2 unit
482.6	932.6		21			Powder-coated	01.103.321.X	1 unit



MEC20181

19" blanking panel cable entry, QuickFix mounting without tools

- For orderly cable management in the rack internal space
- Quick and easy assembly without tools (one click) and disassembly (quarter turn)
- Suitable for 9.5 x 9.5 square holes

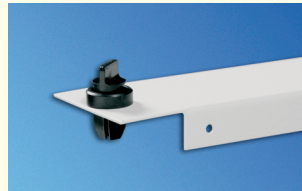
Material
Sheet steel, 1.0 mm

Finish
Final digit of order number .1:
Powder-coated texture, RAL 7035, light gray
Final digit of order number .8:
Powder-coated texture, RAL 7021, dark gray

Supply schedule
6 19" blanking panel cable entries,
QuickFix
Mounting material

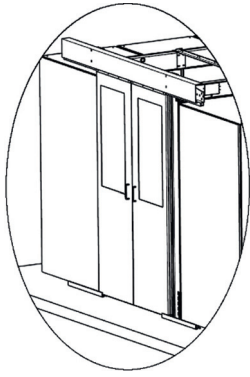
How supplied
In sets; fixing clips pre-mounted

Note
If a blanking panel with 2 U is required,
2 blanking panels with 1 U each can be
mounted on top of one another.



MEC20178

W	H	D	U	d	L	For rack type	Order no.	UP
482.6	43.6		1			Powder-coated	01.103.331.X	6 units



LUF80001

SmartAisle™ Sliding door Prepared for automatic door closers

- For cold aisle containment for aisle widths: 1,200 / 1,500 / 1,800 mm (+/- 50 mm)
- Quick and easy mounting
- Suitable for Miracel® and DCM® racks and most racks of other manufacturers.

Door opening clear
Width: at least 1,050 mm
Height: 2080 mm

Material
Door elements: Sheet steel
Windows: Single safety glass panel
Brush strips: Polyamide (UL94 HF-1)

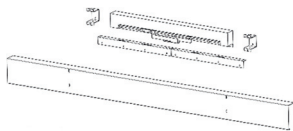
Finish
Final digit of order number .1:
Powder-coated texture, RAL 7035, light gray
Final digit of order number .8:
Powder-coated texture, RAL 7021, dark gray

Supply schedule
1 frame structure
2 doors
2 floor guides
Covers
Sealing material
Mounting material

How supplied
Flat-packed kit

Note
Please order the required closers (electric or mechanical) for this!

W/L	H	D	AW	For rack type	Order no.	UP
2000			1200		03.029.026.X	1 set
2200			1200		03.029.027.X	1 set
2000			1500		03.029.061.X	1 set
2200			1500		03.029.062.X	1 set
2000			1800		03.029.066.X	1 set
2200			1800		03.029.067.X	1 set



LUF80002

Electric closing for sliding door

- Suitable for SmartAisle™ sliding door
- Increases energy efficiency, as doors are closed automatically
- Opens with "push & go"
- Closes with "push & go" or automatically (0 ... 30 seconds)
- Opener/closer contact for control (e.g. fire alarm system)

Material
Sheet steel

Finish
Final digit of order number .1:
Powder-coated texture, RAL 7035, light gray
Final digit of order number .8:
Powder-coated texture, RAL 7021, dark gray

Supply schedule
1 electric drive
1 cover

Various mounting brackets
Mounting material

Technical data
Power supply: 230 V / 50-60 Hz
Opening speed: 0.4 m/s
Closing speed: 0.2 m/s
Automatic closing time setting: 0...30 s
Force: 30 N

How supplied
In units

W/L	H	D	AW	For rack type	Order no.	UP
					03.029.046.X	1 set



LUF80003

Locks, mechanical For sliding doors

- Suitable for SmartAisle™ sliding door
- Increases energy efficiency, as doors are closed automatically
- Retaining function for open door

Material
Sheet steel

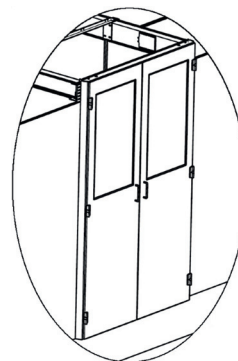
Finish
Final digit of order number .1:
Powder-coated texture, RAL 7035, light gray
Final digit of order number .8:
Powder-coated texture, RAL 7021, dark gray

Supply schedule
2 sets of gas pressure springs
1 cover
Various mounting brackets
Mounting material

Technical data
Force: 20 N

How supplied
In units

W/L	H	D	AW	For rack type	Order no.	UP
					03.029.047.x	1 set



LUF80004

SmartAisle™ Double Door With automatic door closer

- For cold aisle containment for aisle widths: 1,200 / 1,500 / 1,800 mm (+/- 50 mm)
- Quick and easy mounting
- Suitable for Miracel® DCM® racks and most racks of other manufacturers.
- Integrated automatic mechanical door closer (opening angle 180°, mounting bracket approx. 120°, from approx. 100° automatic closing)

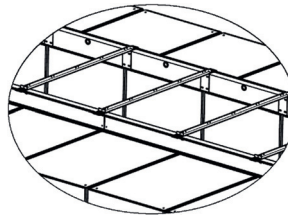
Door opening clear
Width: 1,200 mm
Height: 2,100 mm (for rack height 2,000 mm); 2,300 (for rack height 2,200)

Material
Door frame: Aluminum
Door elements: Sheet steel
Windows: Single safety glass panel
Brush strips: Polyamide (UL94 HF-1)

- **Finish**
Final digit of order number .1:
Powder-coated texture, RAL 7035, light gray
Final digit of order number .8:
Powder-coated texture, RAL 7021, dark gray

- **Supply schedule**
1 door frame
2 doors
3 design covers
2 door closers
Mounting material

- **How supplied**
Flat-packed kit



LUF80006

SmartAisle™ Roof Element Standard version

- For cold aisle containment for aisle widths: 1,200 / 1,500 / 1,800 mm (+/- 50 mm)
- Quick and easy mounting
- Suitable for Miracel® racks and most racks of other manufacturers.
- With rubber sleeves for cable routing
- Plexiglas panel with low fire load and low smoke generation (optionally with compound safety glass)
- Plexiglas panels can be quickly and easily removed

- **Aisle height clear**
Rack height 2,000 mm: 2,150 mm
Rack height 2,200 mm: 2,350 mm

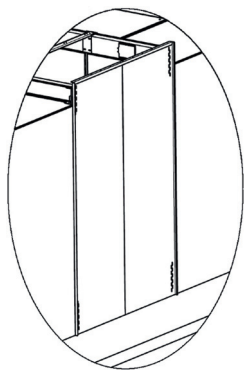
- **Material**
Angular extrusion, cross brace: Sheet steel
Roof panel: Halogen-free plexiglas

- **Finish**
Final digit of order number .1:
Powder-coated texture, RAL 7035, light gray
Final digit of order number .8:
Powder-coated texture, RAL 7021, dark gray

- **Supply schedule**
2 angular extrusions
1 separator strip at W300/600/800,
3 separator strips at L2400
1 roof panel at W300/600/800, 3 roof panels at L2400
2 angular connecting plates
Mounting material

- **How supplied**
Flat-packed kit

W/L	H	D	AW	For rack type	Order no.	UP
2000			1200		03.028.021.X	1 set
2200			1200		03.028.022.X	1 set
2000			1500		03.028.041.X	1 set
2200			1500		03.028.042.X	1 set
2000			1800		03.028.046.X	1 set
2200			1800		03.028.047.X	1 set



LUFxxxxx

SmartAisle™ Front panel element

- For cold aisle containment for aisle widths: 1,200 / 1,500 / 1,800 mm (+/- 50 mm)
- For use instead of a cold aisle door
- Quick and easy mounting
- Suitable for Miracel® racks and most racks of other manufacturers.

- **Material**
Sheet steel

- **Finish**
Final digit of order number .1:
Powder-coated texture, RAL 7035, light gray
Final digit of order number .8:
Powder-coated texture, RAL 7021, dark gray

- **Supply schedule**
1 bracing bracket
2 to 4 panel elements
Mounting material


- **How supplied**
Flat-packed kit

W/L	H	D	AW	For rack type	Order no.	UP
300			1200		03.029.003.X	1 set
600			1200		03.029.004.X	1 set
800			1200		03.029.005.X	1 set
2400			1200		03.029.006.X	1 set
300			1500		03.029.070.X	1 set
600			1500		03.029.071.X	1 set
800			1500		03.029.072.X	1 set
2400			1500		03.029.073.X	1 set
300			1800		03.029.075.X	1 set
600			1800		03.029.076.X	1 set
800			1800		03.029.077.X	1 set
2400			1800		03.029.078.X	1 set

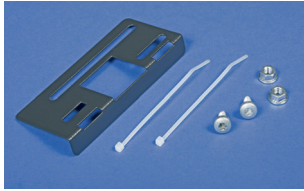
W/L	H	D	AW	For rack type	Order no.	UP
2000			1200		03.029.031.X	1 set
2200			1200		03.029.032.X	1 set
2000			1500		03.029.034.X	1 set
2200			1500		03.029.035.X	1 set
2000			1800		03.029.037.X	1 set
2200			1800		03.029.038.X	1 set

Dimensions in mm: W = Width
H = Height
D = Depth
h = installation height
d = useful depth
L = Length

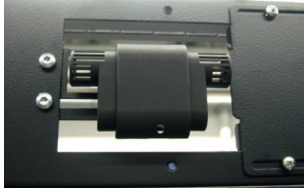
U = standard height unit
1 U = 44.45 mm
UP = unit of packaging
kg = weight

 = Express item

Conversion: 1 mm = 0.03937 inch
1 kg = 2.2046 pound



DCM20046



LUF20316

SmartAisle™ Mounting Bracket For temperature sensors

- Can be used for different temperature sensors (including Liebert® Temperature/Humidity Sensors)
- Suitable for the angular extrusion's air regulation opening

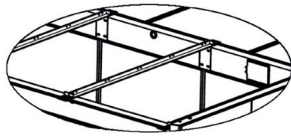
Material
Sheet steel

Finish
Final digit of order number .1:
Powder-coated texture, RAL 7035, light gray
Final digit of order number .8:
Powder-coated texture, RAL 7021, dark gray

Supply schedule
1 mounting brackets
Mounting material

How supplied
Flat-packed kit

W/L	H	D	AW	For rack type	Order no.	UP
					03.029.019.X	1 set



LUF80007

SmartAisle™ Roof Element Version with air regulation opening

- For cold aisle containment for aisle widths: 1,200 / 1,500 / 1,800 mm (+/- 50 mm)
- Quick and easy mounting
- Suitable for Miracel® racks and most makes of other manufacturers.
- With rubber sleeves for cable routing
- Plexiglas panel with low fire load and low smoke generation (optionally with compound safety glass)
- Plexiglas panels can be quickly and easily removed
- With air regulation opening for energy-efficient operation of the recirculated air devices and for preventing hot spots.

Aisle height clear
Rack height 2,000 mm: 2,150 mm
Rack height 2,200 mm: 2,350 mm

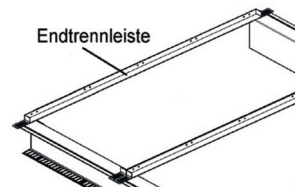
Material
Angular extrusion, cross brace: Sheet steel
Plexiglas panel: Halogen-free plexiglas

Finish
Final digit of order number .1:
Powder-coated texture, RAL 7035, light gray
Final digit of order number .8:
Powder-coated texture, RAL 7021, dark gray

Supply schedule
2 angular extrusions with air regulation opening
1 separator strip at W600/800, 3 separator strips at L2400
1 plexiglas panel at W600/800, 3 plexiglas panels at L2400
2 angular connecting plates
Mounting material

How supplied
Flat-packed kit

W/L	H	D	AW	For rack type	Order no.	UP
600			1200		03.029.014.X	1 set
800			1200		03.029.015.X	1 set
2400			1200		03.029.016.X	1 set
600			1500		03.029.081.X	1 set
800			1500		03.029.082.X	1 set
2400			1500		03.029.083.X	1 set
600			1800		03.029.086.X	1 set
800			1800		03.029.087.X	1 set
2400			1800		03.029.088.X	1 set



LUF80008

SmartAisle™ End separator strip

- For cold aisle containment for aisle widths: 1,200 / 1,500 / 1,800 mm (+/- 50 mm)
- Quick and easy mounting
- For connecting on the door element or front panel element

Material
Sheet steel

Finish
Final digit of order number .1:
Powder-coated texture, RAL 7035, light gray
Final digit of order number .8:
Powder-coated texture, RAL 7021, dark gray

Supply schedule
2 end separator strips
Mounting material

How supplied
In units

W/L	H	D	AW	For rack type	Order no.	UP
			1200		03.029.010.X	1 pair
			1500		03.029.011.X	1 pair
			1800		03.029.012.X	1 pair



DCM20045

SmartAisle™ Protector Bracket for Roof Element

- Prevents plexiglas panels from lifting up with excess pressure
- Enables safe pressure balancing in the event of a fault or while a fire is being extinguished

Material
Sheet steel

Finish
Final digit of order number .1:
Powder-coated texture, RAL 7035, light gray
Final digit of order number .8:
Powder-coated texture, RAL 7021, dark gray

Supply schedule
1 pair of protector brackets
Mounting material

How supplied
Flat-packed kit



LUF20327

W/L	H	D	AW	For rack type	Order no.	UP
4800					03.029.041.X	1 set



DCM20048

Roof Mounting Set for 4.8 meter aisle length

- Complete mounting set for 4.8 meter aisle length

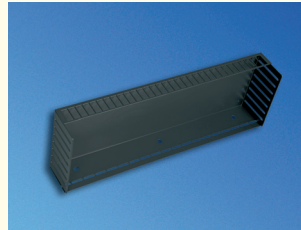
Material
Angular extrusion plates: Sheet steel
Sealing tape: Foam rubber (UL94 HF-1)

Finish
Final digit of order number .1:
Powder-coated texture, RAL 7035, light gray
Final digit of order number .8:
Powder-coated texture, RAL 7021, dark gray

Supply schedule
Mounting material

How supplied
Flat-packed kit

W/L	H	D	AW	For rack type	Order no.	UP
4800					03.029.020.X	1 set



DCM20057

SmartAisle™ Height Panels

- For balancing the separation of the cold and hot areas in smaller racks

Material
Sheet steel

Finish
Final digit of order number .1:
Powder-coated texture, RAL 7035, light gray
Final digit of order number .8:
Powder-coated texture, RAL 7021, dark gray

Supply schedule
1 height panel
Mounting material

How supplied
Flat-packed kit

Note
For several height panels positioned beside one another, please ask for the appropriate angular extrusion plates.



LUF20328

W	H	D	AW	For rack type	Order no.	UP
600	200			Miracel	03.029.051.X	1 unit
800	200			Miracel	03.029.052.X	1 unit



LUFxxxxx

SmartAisle™ Sealing Set For 4.8 meter aisle length

- Suitable for installation in Miracel® rack
- For sealing the leveling area between the floor and the rack
- For sealing for Miracel® rack suites without side panels

Material/color
Foam: PUR-Ether UL94 HF-1, black
Cover extrusion: PVC extruder, black

Supply schedule
10 meters of foam 40 x 25 mm
31 meter cover extrusion

How supplied
Flat-packed kit

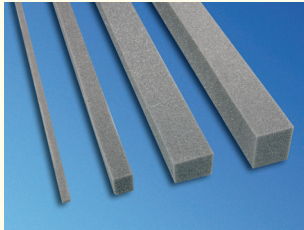
W/L	H	D	AW	For rack type	Order no.	UP
4800				Miracel	03.029.040.9	1 set

Dimensions in mm: W = Width
H = Height
D = Depth
h = installation height
d = useful depth
L = length

U = standard height unit
1 U = 44.45 mm
UP = unit of packaging
kg = weight

Express item

Conversion: 1 mm = 0.03937 inch 1 kg = 2.2046 pound



DCM20047

SmartAisle™ Sealing Material

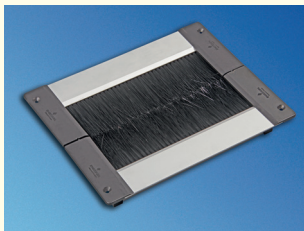
- Suitable for sealing openings (e.g. leveling areas between floor and rack, between racks, etc.)

Material/color
PUR-Ether UL94 HF-1, black

Supply schedule
5 x 2 meters of foam

How supplied
Flat-packed kit

W/L	H	D	AW	Size	Order no.	UP
				40 x 40 (glued surface) mm	03.029.042.9	1 set
				20 x 20 (glued surface) mm	03.029.043.9	1 set
				5 x 10 (glued surface) mm	03.029.044.9	1 set
				25 x 40 (glued surface) mm	03.029.045.9	1 set



LUFxxxxx

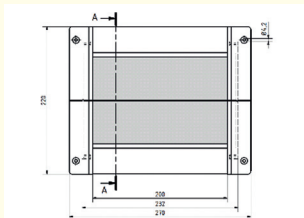
SmartAisle™ Raised Floor Air Barrier for cable entry

- For cable entry from the raised floor
- Sunk in the raised floor, or can be used as superstructure
- Two-row tight brushes for pressure-resistant cold-hot separation
- For new breakouts; as superstructure for existing breakouts
- Two-piece – easy extend and upgrade option
- The length can be easily shortened on-site (metal saw)
- Also suitable for cabling on the rack wall (U-shape, two-piece)
- Slot-in – and threaded connection additionally

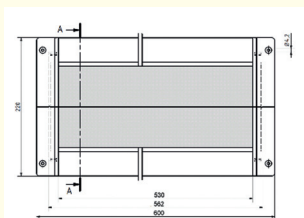
- Dimensions**
03.028.211.9:
- External dimensions (270 mm x 220 mm)
 - Usable cable entry (200 mm x 126 mm)
- 03.028.212.9:
- External dimensions (600 mm x 220 mm)
 - Usable cable entry (530 mm x 126 mm)
 - Raised floor breakout (570 mm x 180 mm)

Supply schedule
1 pair of raised floor air barriers
Mounting material

How supplied
Flat-packed kit

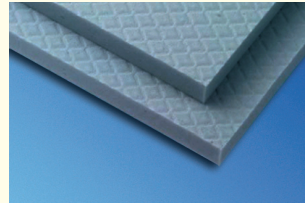


LUF80009



LUF80010

W	H	D	U	D(max.)	kg	Model	Order no.	UP
270	220					Length 270 mm	03.028.211.9	1 set
600	220					Length 600 mm	03.028.212.9	1 set



LUFxxxxx

SmartAisle™ Sealing Material for Raised Floor

- For sealing existing openings in the raised floor; not suitable as a replacement for a complete raised floor panel
- Easy cutting to required size

Material
Melamine resin foam, UL94-HF1

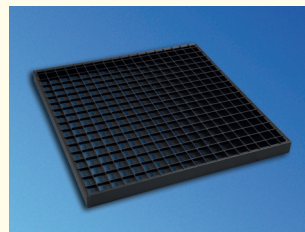
Color
Gray

Supply schedule
4 foam panels

Technical data
Size 610 x 610 x 40 mm (WxLxH)

How supplied
Set of 4 units

W	H	D	AW	For rack type	Order no.	UP
					03.028.221.9	1 set



LUFxxxxx

SmartAisle™ Grate for Raised Floor

- For use on raised floors
- Can be used with high heat loads and high requirements for cooling air per rack
- For energy-efficient operation of the recirculated air devices

Material
Zinc-passivated steel

Finish
Final digit of order number .1:
Powder-coated texture, RAL 7035, light gray
Final digit of order number .8:
Powder-coated texture, RAL 7021, dark gray

Standards
Produced in acc. with RAL-GZ 638
Load capacity according to DIN EN 12825
- on supports: Shifting class 1A (2kN) and 2 C (3kN); measurement plate center
- on supports and profiles:
Shifting class 2 A (3kN)

Supply schedule
1 raised floor grate

Technical data
Size 598 x 598 x 40 mm (WxLxH); free cross-section: 88%
Max. surface load 50,000 N/m² with even distribution; max. point load (on 200x200 mm area) 4,500 N

How supplied
In units

Note
Suitable for raised floors with 40 mm thick panels!

W	H	D	AW	For rack type	Order no.	UP
					03.029.090.X	1 unit