

CONNECT AND PROTECT

19"-Fan Trays


nvent

SCHROFF

Climate control – 19" fan trays

OVERVIEW

MAIN KATALOG

- Cabinets 1
- Wall mounted cases 2
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- Electronics cases 5
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- Appendix 12



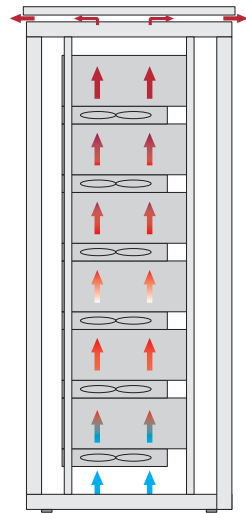
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STANDARDS/APPROVALS

- 19" assembly area in accordance with: IEC 60297-3-101
- Mechanical protection to DIN EN ISO 13857
- Contact protection to DIN EN ISO 13857
- Electrical safety to EN 60335 part 1
- Plastics self-extinguishing to UL 94 V0

AIRFLOW

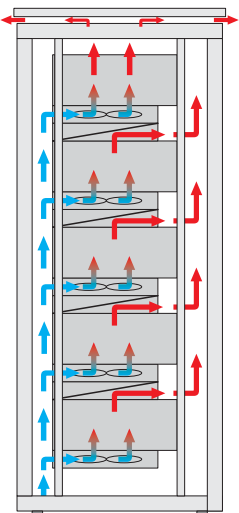
VERTICAL AIRFLOW (CONTINUAL WARMING)



01109055

With vertical airflow the air becomes steadily warmer as it rises through the cabinet.

DIVERTED AIRFLOW (EFFECTIVE COOLING)



01109054

By using the 1 U airflow element, air is introduced from the front and extracted to the rear. Now all sub-assemblies receive the same cooling air.

Climate control – 19" fan trays

OVERVIEW

19" FAN TRAYS

- To cool single components and assemblies in 19" cabinets
- High airflow rate for directed heat removal
- With axial or radial fans
- For voltages 230 V_{AC}, 115 V_{AC} or 24 V_{DC}
- CE- approvals



19" FANS

- 19" circulation fan, height 1 U
- 230 V_{AC}, 115 V_{AC} and 24 V_{DC}
- Up to 1000 m³/h
- With/without mains switch or with temperature-dependent speed control



19" PUSHER FANS

- Tangential fan, height 2 U
- 230 V_{AC} and 115 V_{AC}
- Up to 320 m³/h



- 19" pusher fan, height 2 U
- 230 V_{AC} and 115 V_{AC}
- Up to 530 m³/h



- 19" pusher fan, height 3 U
- 230 V_{AC} and 115 V_{AC}
- Up to 570 m³/h
- Variable air outlet with/without pipe connection, upward or to rear

SERVICEPLUS

- e.g. other airflow capacities
- e.g. supply voltages
- e.g. other dimensions
- e.g. custom solutions

Overview 4.4

19" fans
1 U with/without front switch 4.6
1 U speed-controlled and monitored 4.8
..

19" blower units
Pusher fan, 2 U with tangential blower . . 4.9

Pressure fan, 2 U, (160, 220 mm deep) 4.10

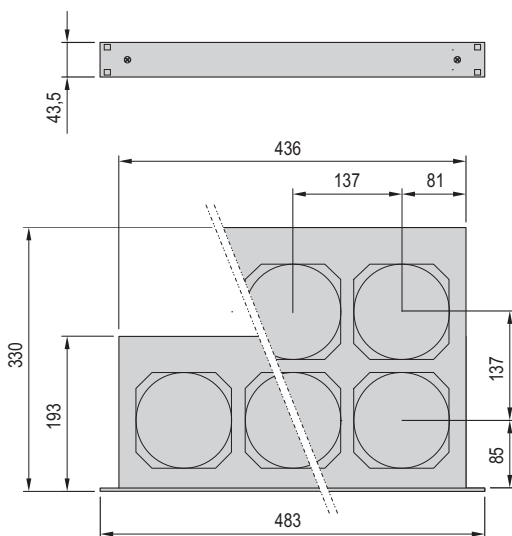
Pusher fan, 3 U . . . 4.12

ServicePLUS configuration 4.14

Accessories
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Climate control – 19" fan trays

19" FAN 1 U



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KTA44306

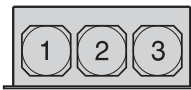
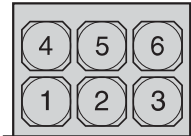
- Mechanical strain relief for mains cables
- Can be adapted to subracks
- Contact protection in accordance with DIN EN ISO 13857



DELIVERY COMPRISES (ready to connect)

| Item | Qty | Description |
|------|-------|--|
| 1 | 1 | 19" circulation fan, 1 U, cover/base plate, St, 1 mm, finish AlZn, with perforation; front panel 1 U, Al, 3 mm, anodised |
| 2 | 3 / 6 | Fan, see Order Information |
| 3a | 1 | AC with IEC connector (mains input IEC 60320), incl. safety clamp for mechanical strain relief |
| b3 | 1 | DC version with connecting cable, cable length 2.5 m |

ORDER INFORMATION

| | 24 V _{DC} Part no. | 115 V _{AC} Part no. | 230 V _{AC} Part no. |
|--|--------------------------------|---------------------------------|---------------------------------|
|  KTA44857 | 10713-103 | 10713-102 | 10713-100 |
|  KTA44858 | 10713-107 | 10713-106 | 10713-104 |
| Replacement fan 1 piece | 20713-240 | 20713-244 | 20713-243 |
| Side panel connecting bracket between europacPRO subrack and fan, including fixing material kit, PU 4 pieces | | | 21101-954 |
| Equipment cable SCHUKO/UTE SCHUKO/UTE plug, IEC 60320 C13 socket, 2.5 m, 1 piece | | | 60103-131 |
| Equipment cable, BS British Standard plug, IEC 60320 C13 socket, 2.5 m, 1 piece | | | 60103-137 |
| Equipment cable, USA USA plug, IEC 60320 socket, 2 m, 1 piece | | | 60103-141 |

TECHNICAL DATA

| Voltage | 230 V _{AC} | | 115 V _{AC} | | 24 V _{DC} |
|--|---------------------|-----------|---------------------|-----------|--------------------|
| | 50 | 60 | 50 | 60 | - |
| Frequency in Hz | 50 | 60 | 50 | 60 | - |
| Number of fans | 3/6 | | 3/6 | | 3/6 |
| Airflow volume in m ³ /h (3/6 fans) | 440/845 | 520/1000 | 440/845 | 520/1000 | 506/970 |
| Noise level in dB(A) (3/6 fans) | 56.5/59.4 | 60.2/62.9 | 56.5/59.4 | 60.2/62.9 | 60.5/63.3 |
| Power consumption in W (3/6 fans) | 45/90 | 42/84 | 46.5/93 | 43.5/87 | 24/48 |
| Max. stat. pressure in Pa | 73 | 88 | 73 | 88 | 68 |
| Permissible ambient temperature in °C | -40 ... +70 °C | | | | |
| Lifespan in h L ₁₀ 40 °C | 43500 | | | | |
| Lifespan in h L ₁₀ 55 °C | 20000 | | | | |

NOTE

- Fan dimensioning see page 4.18
- Replacement fans see chapter Climate control - Accessories
- Versions with multiple fans see ServicePLUS configuration page 4.14

Climate control – 19" fan trays

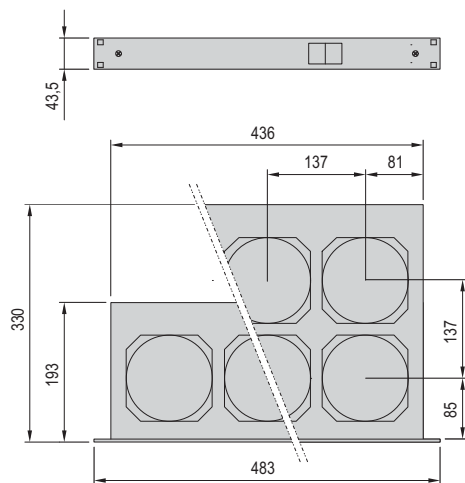
19" FAN 1 U WITH FRONT SWITCH



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01197002



KTA45963


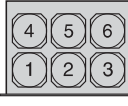
- Front-mounted illuminated mains switch on AC devices, coupled with additional rear mains outlet; mechanical strain relief for mains input and mains output cables
- Can be adapted to subracks
- Contact protection in accordance with DIN EN ISO 13857



DELIVERY COMPRISES (ready to connect)

| Item | Qty | Description |
|------|-------|--|
| 1 | 1 | 19" circulation fan, 1 U, top/base plate, St, 1 mm, finish AlZn, with perforation; front panel 1 U, Al, 3 mm, anodised |
| 2 | 3 / 6 | Fan, see Order Information |
| 3a | 1 | AC version with mains switch, illuminated green; plug (mains input IEC 60320) incl. safety clamp for mechanical strain relief; coupled mains output socket (IEC 60320) |
| b3 | 1 | DC version with mains switch and connecting cable, cable length 2.5 m |

ORDER INFORMATION

| | 24 V _{DC} Part no. | 115 V _{AC} Part no. | 230 V _{AC} Part no. |
|--|--------------------------------|---------------------------------|---------------------------------|
|  KTA44857 | 10713-111 | 10713-110 | 10713-108 |
|  KTA44858 | 10713-115 | 10713-114 | 10713-112 |
| Replacement fan 1 piece | 20713-240 | 20713-244 | 20713-243 |
| Side panel connecting bracket between europacPRO subrack and fan, including fixing material kit, PU 4 pieces | | | 21101-954 |
| Equipment cable SCHUKO/UTE SCHUKO/UTE plug, IEC 60320 C13 socket, 2.5 m, 1 piece | | | 60103-131 |
| Equipment cable, BS British Standard plug, IEC 60320 C13 socket, 2.5 m, 1 piece | | | 60103-137 |
| Equipment cable, USA USA plug, IEC 60320 socket, 2 m, 1 piece | | | 60103-141 |
| Mains cable, IEC IEC 60320 C14 plug, IEC 60320 C13 socket, 2.5 m, 1 piece | | | 60197-053 |

TECHNICAL DATA

| Voltage | 230 V _{AC} | | 115 V _{AC} | | 24 V _{DC} |
|--|---------------------|-----------|---------------------|-----------|--------------------|
| Frequency in Hz | 50 | 60 | 50 | 60 | - |
| Number of fans | 3/6 | | 3/6 | | 3/6 |
| Airflow volume in m ³ /h (3/6 fans) | 440/845 | 520/1000 | 440/845 | 520/1000 | 506/970 |
| Noise level in dB(A) (3/6 fans) | 56.5/59.4 | 60.2/62.9 | 56.5/59.4 | 60.2/62.9 | 60.5/63.3 |
| Power consumption in W (3/6 fans) | 45/90 | 42/84 | 46.5/93 | 43.5/87 | 24/48 |
| Max. stat. pressure in Pa | 73 | 88 | 73 | 88 | 68 |
| Permissible ambient temperature in °C | -40 ... +70 °C | | | | |
| Lifespan in h L ₁₀ 40 °C | 43500 | | | | |
| Lifespan in h L ₁₀ 55 °C | 20000 | | | | |

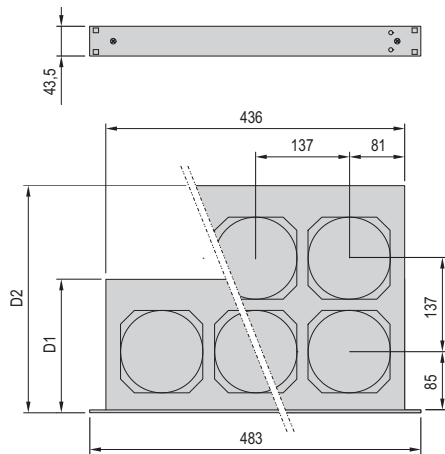
- Fan dimensioning, see page 4.18
- Replacement fans, see chapter Climate control - Accessories
- Versions with multiple fans see ServicePLUS configuration page 4.14

Climate control – 19" fan trays

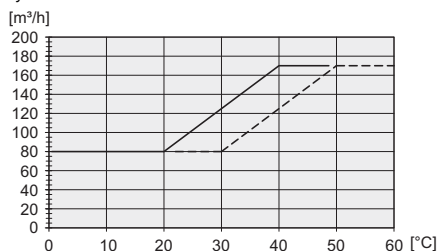
19" FAN 1 U, WITH SPEED CONTROL AND FUNCTION MONITORING



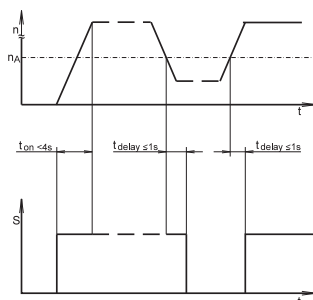
Photo shows 19" fan unit with 3 fans, without switch



Airflow capacity with one fan



Monitoring signal



n = rotating speed, S = signal, n_A = speed threshold value "Alarm"

- Low noise through temperature dependent airflow volume
- Range selectable: 20 ... 40 °C and 30 ... 50 °C
- External sensor, at sensor breakage max speed will be set automatically
- Function control with LEDs and via potential-free contact
- Contact protection in accordance with DIN EN ISO 13857
- 2 versions, 24 V_{DC} or 230 V_{AC}



DELIVERY COMPRISES (ready for connection)

| Item | Qty | Description |
|------|-------|--|
| 1 | 1 | 19" circulation fan, 1 U; cover/base plate, St, 1 mm, finish Al-Zn, with perforation front panel 1 U, Al, 3 mm, anodised |
| 2 | 3 / 6 | DC fan, see Order information |
| 3 | 1 | Connecting cable, length 2.5 m, open-ended |
| 4 | 1 | Temperature sensor for speed control, NTC resistor, cable length 1.5 m |

01198001

ORDER INFORMATION

| | 24 V _{DC} | | 230 V _{AC} | |
|----|--------------------|------------------|---------------------|------------------|
| | D | Without switch | D | With switch |
| | mm | Part No. | mm | Part No. |
| D1 | 193 | 10713-099 | 250 | 19713-121 |
| D2 | 330 | 10713-098 | 397 | – |
| | | | | 19713-006 |

Accessories

| | |
|---|------------------|
| Filter mat, class G 2 for 3 fans, PU 3 pieces | 60713-169 |
| Filter mat, class G 2 for 6 fans, PU 3 pieces | 60713-170 |

01107050

TECHNICAL DATA

| | 86 ... 260 V _{AC} 24 V _{DC} (21 ... 27) | |
|--|--|--------|
| Voltage AC version (fans 24 V_{DC}) | | |
| Voltage DC version | | |
| Number of fans | 3 | 6 |
| Max. airflow volume in m ³ /h | 467 | 895 |
| Noise level in dB(A) | 63.5 | 66.4 |
| Max. stat. pressure in Pa | 70 | 70 |
| Power consumption in W | 15.9 | 31.8 W |
| Permissible ambient temperature °C | –20 ... +65 °C | |
| Life in h L ₁₀ 40 °C | 70000 | |

01112050

Technical data Regulation/monitoring

| | |
|------------------|--|
| Control range | Changeover switch between 20 ... 40 °C and 30 ... 50 °C |
| Sensor | External NTC resistor, cable length 1.5 m |
| Sensor connector | Rear-mounted plug contact, max. rotation speed in case of sensor breakage |
| Signal at | Speed < 30 % nominal speed; switch-on delay < 4 s, signal delay < 1 s (see monitoring signal) |
| Signalling | Display via LEDs; potential-free contact (changeover), switching capacity 5 W, max. switching voltage 170 V, open collector on request |

kt43400

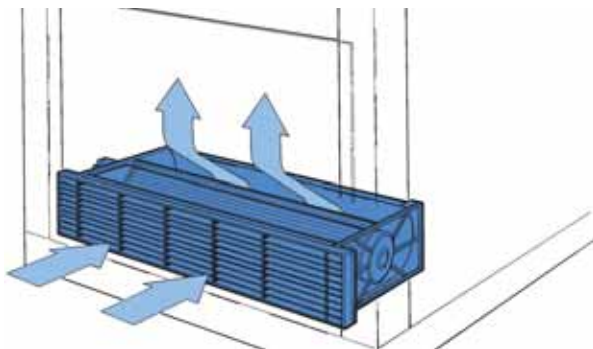
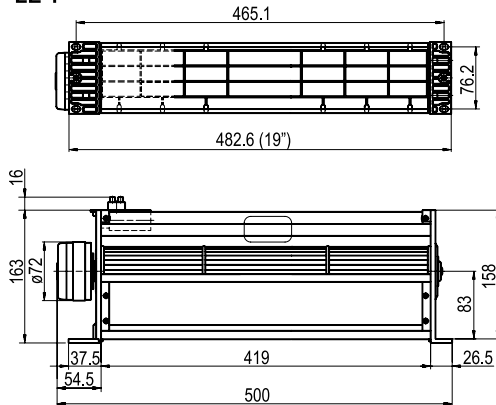
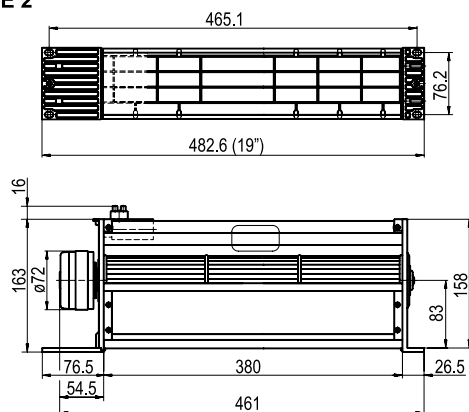
- Fan dimensioning see page 4.18

Climate control – 19" fan trays

PUSHER FAN, 2 U, WITH TANGENTIAL FAN



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LE 1

LE 2


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- High airflow volume
- Integrated filter mat
- 2 versions:
 - LE1: 19" bolt-on dimension, fan unit is wider than 19"
 - LE2: 19" reduced width, for easy assembly



DELIVERY COMPRISES (ready to connect)

| Item | Qty | Description |
|------|-----|--|
| 1 | 1 | Blower unit 2 U, with grille, PA 6.6, UL 94 V-0, front grille 2 U, PPO, UL 94 V-0; filter mat, synthetic fibre, filter class G 2 |
| 2 | 1 | Fan |
| 3 | 1 | Terminal block |

ORDER INFORMATION

| Description | 115 V _{AC} Part no. | 230 V _{AC} Part no. |
|--|---------------------------------|---------------------------------|
| LE1: Pusher fan 2 U, tangential blower | 60713-003 | 60713-001 |
| LE2: Pusher fan 2 U, tangential blower | 60713-004 | 60713-002 |
| Spare filter mat PU 10 pieces | | 20705-008 |

A3532

DIMENSIONS

| Voltage | 115 V _{AC} | | 230 V _{AC} | |
|---------------------------------------|---------------------|-----|---------------------|-----|
| Frequency in Hz | 50 | 60 | 50 | 60 |
| Airflow volume in m ³ /h | 320 | 330 | 320 | 330 |
| Noise level in dB(A) | 59 | 62 | 59 | 62 |
| Max. stat. pressure in Pa | 65 | 70 | 65 | 70 |
| Power consumption in W | 30 | 40 | 37 | 46 |
| Permissible ambient temperature in °C | -20 ... +65 °C | | | |
| Lifespan in h | 30000 | | | |

NOTE

- 24 V_{DC} on request
- Fan dimensioning, see page 4.18

Climate control – 19" fan trays

19" PUSHER FAN 2 U (DEPTH 160 MM OR 220 MM)



- Integrated air deflector prevents heat buildup in the assemblies mounted below
- Optionally with rear additional fan, 2 U, for active cooling of assemblies beneath the pusher fan
- Can be adapted to subtracks
- Contact protection in accordance with DIN EN ISO 13857

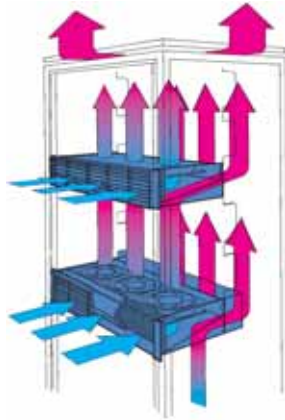
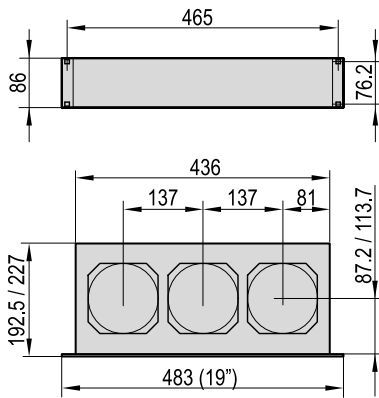


DELIVERY COMPRISES (ready to connect)

| Item | Qty | Description |
|------|-----|--|
| 1 | 1 | 19" pusher fan 2 U, case, St, 1 mm, finish Al-Zn; front grille 2 U, PPO, UL 94 V-0 Filter mat, synthetic fibre, filter class G 2 |
| 2 | 3 | Fan |
| 3a | 1 | AC-version with plug (mains input, IEC 60320), incl. safety clamp, mechanical strain relief for mains input cable; socket to connect an optional supplementary fan |
| 3b | 1 | Wide AC input range with DC fans, version as 3 a, additionally speed-controlled and monitored |
| 3c | 1 | DC version with connecting cable, cable length 2.5 m |

NOTE

- Supplementary fan for AC version see page 4.11
- Fan dimensioning, see page 4.18



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ORDER INFORMATION

| Description | Front panel Al, anodised | | Front panel, plastic, black | | | |
|--|---|---|--|--|--|--|
| | 86 ... 260 V _{AC} (fan 24 V _{DC}) 515 m ³ /h Part no. | 24 V _{DC} 515 m ³ /h Part no. | 115 V _{AC} 300/330 m ³ /h Part no. | 115 V _{AC} 445/530 m ³ /h Part no. | 230 V _{AC} 300/330 m ³ /h Part no. | 230 V _{AC} 445/530 m ³ /h Part no. |
| For board depth 160 mm | 19713-540 | 10713-537 | 10713-520 | 10713-536 | 10713-518 | 10713-534 |
| For board depth 220 mm | – | 10713-529 | – | – | – | 10713-526 |
| Replacement fan piece | 20713-240 | 20713-240 | 20713-147 | 20713-244 | 20700-001 | 20713-243 |
| Equipment cable SCHUKO/UTE SCHUKO/UTE plug, IEC 60320 C13 socket, 2.5 m, 1 piece | | | | | | 60103-131 |
| Equipment cable BS British Standard plug, IEC 60320 C13 socket, 2.5 m, 1 piece | | | | | | 60103-137 |
| Equipment cable USA USA plug, IEC 60320 socket, 2 m, 1 piece | | | | | | 60103-141 |
| Side panel connecting bracket between europac subrack, including fixing material kit | | | | | | 21101-104 |
| Side panel connecting bracket between europacPRO subrack and fan, including fixing material kit, PU 4 pieces | | | | | | 21101-954 |
| Spare filter mat PU 3 pieces | | | | | | 60713-501 |

Technical data with 3 fans

| Voltage | 24 V _{DC} | 24 V _{DC} | 115 V _{AC} | | 230 V _{AC} | |
|---|---------------------|--------------------|---------------------|---------------------|---------------------|---------------------|
| Frequency in MHz | - | - | 50 | 60 | 50 | 60 |
| Airflow volume in m ³ /h | 515 | 515 | 300 | 330 | 445 | 530 |
| Noise level in dB(A) | 59.8 | 59.8 | 52.2 | 56.1 | 55.2 | 58.2 |
| Max. stat. pressure in Pa | 68 | 68 | 41 | 41 | 78 | 88 |
| Power consumption in W | 24 | 24 | 42 | 33 | 46.5 | 43.5 |
| Permissible ambient temperature in °C | -20 ... +70 °C | | -40 ... +70 °C | | | |
| Life in h, ¹⁾ at 40 °C, ²⁾ at 55 °C | 20000 ²⁾ | | 50000 ¹⁾ | 20000 ²⁾ | 50000 ¹⁾ | 20000 ²⁾ |

Climate control – 19" fan trays

SUPPLEMENTARY FANS WITH HOUSING FOR PUSHER FAN 2 U



- Extra 2 U useable space:
By using a built-on fan, components mounted below the 19" pusher fan can be cooled
- No additional voltage supply necessary: connection is via 19" pusher fan, 2 U
- Contact protection in accordance with DIN EN ISO 13857



DELIVERY COMPRISES (ready to fit and connect)

| Item | Qty | Description |
|------|-----|---|
| 1 | 1 | Housing with grille, St, 1 mm, finish AlZn |
| 2 | 4 | Fan |
| 3 | 1 | Cable with plug (electrical connection via socket on 19" blower fan); safety clamp (mechanical strain relief for mains input cable) |

ORDER INFORMATION

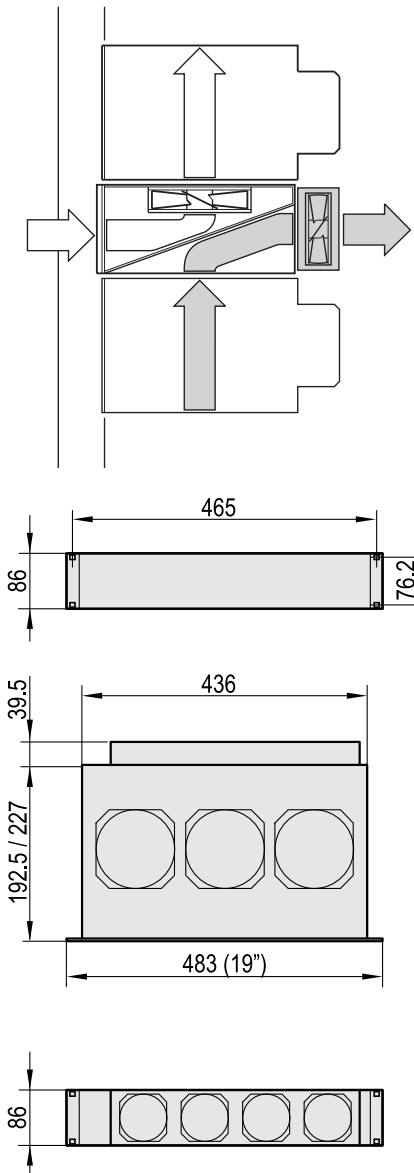
| Description | 115 V _{AC} Part no. | 230 V _{AC} Part no. |
|--|---------------------------------|---------------------------------|
| Supplementary fans with housing for pusher fan 2 U | 10713-532 | 10713-530 |

TECHNICAL DATA with 3 fans

| Voltage | 115 VAC | | 230 VAC | |
|---------------------------------------|------------------|-----|-------------|-----|
| | Frequency in MHz | 50 | 60 | 50 |
| Airflow volume in m ³ /h | 130 | 155 | 130 | 155 |
| Noise level in dB(A) | 51 | 54 | 51 | 54 |
| Max. stat. pressure in Pa | 44 | 62 | 44 | 62 |
| Permissible ambient temperature in °C | -40 ... +70 | | -40 ... +70 | |
| Power consumption in W | 30 | 24 | 27 | 21 |
| Life in h at 55 °C | 20000 | | 20000 | |

NOTE

- 24 V_{DC} version available on request
- Fan dimensioning see page 4.18

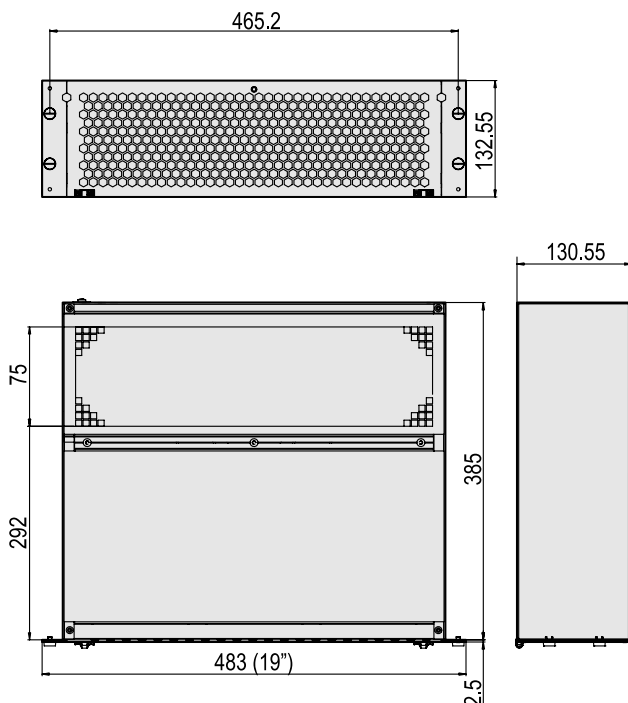


Climate control – 19" fan trays

19" PUSHER FAN 3 U



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With cover plates, this pusher fan can be re-fitted to different cooling concepts

- Ventilation directed accurately to the electronics
- Air infeed from front, air exits at the top rear of cabinet (guided upwards by cover plates or via hoses to rear and upwards)
- Contact protection in accordance with DIN EN ISO 13857



DELIVERY COMPRISES (ready for connection)

| Item | Qty | Description |
|------|-----|--|
| 1 | 1 | Case, St, 1 mm, AlZn; perforated hinged front panel, Al, 2.5 mm; filter mat, synthetic fibre, filter class G 2 in accordance with DIN EN 779 |
| 2 | 1 | Radial fan with mains fuse |
| 3 | 1 | Plug (mains input, IEC 60320); safety clamp, mechanical strain relief for mains input cable |

ORDER INFORMATION

| Description | 115 V _{AC} | 230 V _{AC} |
|--------------------|---------------------|---------------------|
| | Part no. | Part no. |
| 19" pusher fan 3 U | 10713-547 | 10713-546 |

Accessories

| | |
|--|------------------|
| Equipment cable SCHUKO/UTE SCHUKO/UTE plug, IEC 60320 C13 socket, 2.5 m, 1 piece | 60103-131 |
| Equipment cable, BS British Standard plug, IEC 60320 C13 socket, 2.5 m, 1 piece | 60103-137 |
| Equipment cable, USA USA plug, IEC 60320 socket, 2 m, 1 piece | 60103-141 |
| Side panel connecting bracket between europac subrack and fan, including fixing material kit, PU 4 pieces | 21101-958 |
| Side panel connecting bracket between europacPRO subrack and fan, including fixing material kit, PU 4 pieces | 21101-954 |
| Spare filter mat PU 3 pieces | 60713-868 |

TECHNICAL DATA

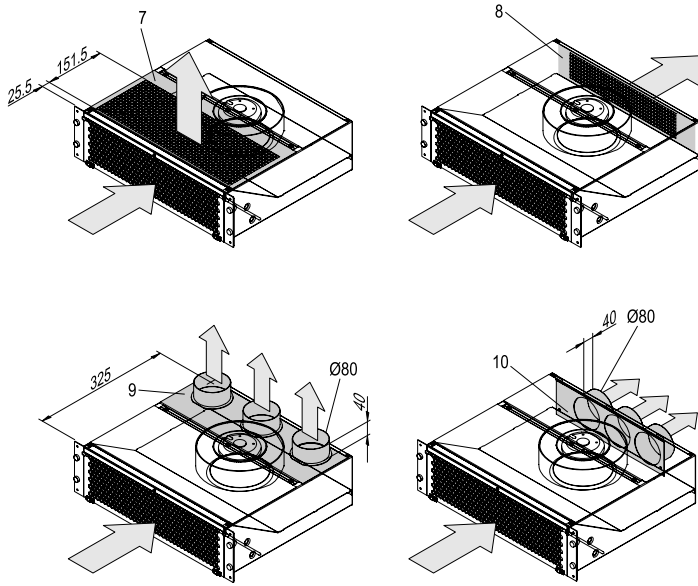
| Voltage | 115 VAC | | 230 VAC | |
|-------------------------------------|-------------|-----|-------------|-----|
| | 50 | 60 | 50 | 60 |
| Frequency in MHz | 50 | 60 | 50 | 60 |
| Airflow volume in m ³ /h | 510 | 570 | 510 | 570 |
| Noise level per fan in dB(A) | 62 | 64 | 62 | 64 |
| Max. stat. pressure in Pa | 320 | 410 | 320 | 410 |
| Power consumption in W | 55 | 65 | 58 | 75 |
| Max. ambient temperatures in °C | -20 ... +50 | | -20 ... +50 | |
| Life in h at 55 °C | 20000 | | 20000 | |

NOTE

- Wide input voltage range 90 V ... 260 V_{AC} available on request
- Temperature control and function monitoring (alarm via RS 232) on request
- Air deflector plates for other cooling concepts see page 4.13
- Fan dimensioning see page 4.18

Climate control – 19" fan trays

AIR DEFLECTOR PLATE FOR 19" PUSHER FAN 3 U



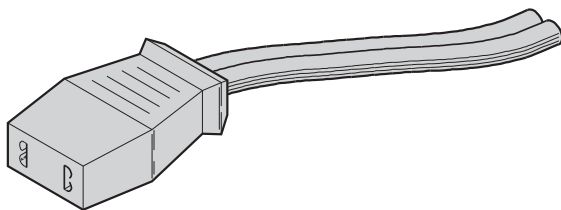
01103053

- For 19" pusher fan 3 U

ORDER INFORMATION

| Item | Description | Qty/PU | Part no. |
|------|--|--------|-----------|
| 7 | Air deflector plate to front, St, 1 mm, finish AlZn | 1 | 20713-504 |
| 8 | Air outlet to rear: upper cover plate, without perforation, 1 mm, finish AlZn | 1 | 20713-505 |
| 9 | Air deflector plate with hose connection on upper rear, external diameter 80 mm, St, 1 mm, finish AlZn | 1 | 20713-503 |
| 10 | Air deflector plate with hose connection to rear, external diameter 80 mm, St, 1 mm, finish AlZn | 1 | 20713-502 |

CONNECTING CABLE WITH CONNECTOR SOCKET



KTA43091

- Connecting cable with connector for AC fans (25 mm and 38 mm height) and DC fans (38 mm height), cable length 1 m

DELIVERY COMPRISES

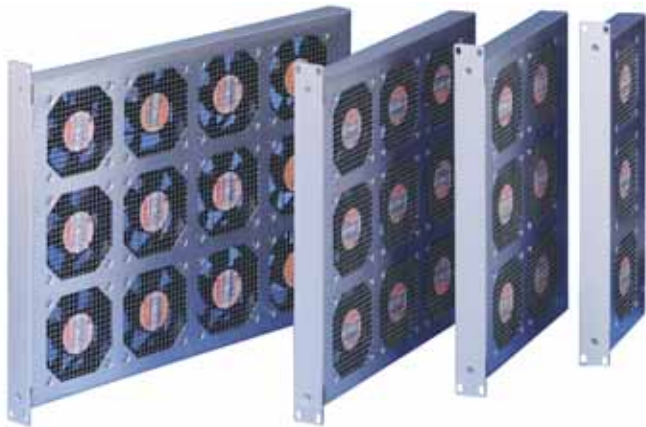
| Item | Qty | Description |
|------|-----|---|
| 1 | 1 | Cable, PVC (2 x 0.75 mm ²), 1 m long, with 2 FASTON connectors 2.8 x 0.5 mm, DIN 46343 T1 |

ORDER INFORMATION

| Description | Part no. |
|----------------------------|------------------|
| Connecting cable with plug | 21101-246 |

Climate control – 19" fan trays

SERVICEPLUS: CONFIGURATION WITH ASSEMBLY



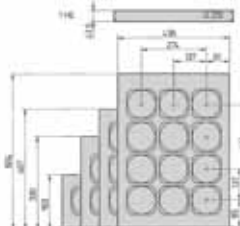

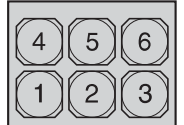
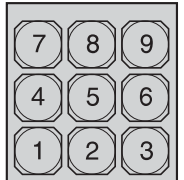
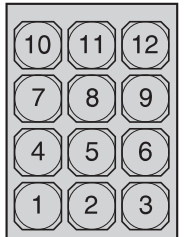
01102012

- You can plan and build up your product yourself using the order information table below
- Dimensions of fan trays
 - Height 1 U
 - Width 19"
 - Depth 193, 300, 467, 604 mm for 3, 6, 9 or 12 fans
- Create your 19" fan trays from individual parts (assembled within 10 working days)

Example configuration

| Qty | Description | Order no. |
|-----|--|--------------|
| 1 | Housing, 1 piece | 20713-213 |
| 1 | Front panel with switch, AC, 1 piece | 20713-231/05 |
| 1 | Filter mat, 1 piece | 60713-246/05 |
| 6 | Fan, AC, height 25 mm; mounted at position 1, 3, 5, 7, 9, 11 | 20700-001/05 |

ORDER INFORMATION

| | Fan height | Fan housing 1) | Front panel without switch | | Front panel with switch | | Filter mat G 2 | Fans |
|--|------------|----------------|----------------------------|--------------|-------------------------|--------------|------------------|----------|
| | | | AC (230 V) | DC | AC (230 V) | DC | | |
|  a44537 | mm | 1 piece | 1 piece | 1 piece | 1 piece | 1 piece | PU 3 pieces | see page |
| | 25 | 20713-212 | 20713-220/05 | 20713-224/05 | 20713-228/05 | 20713-236/05 | 60713-243 | 4.16 |
|  KTA44857 | 38 | 20713-216 | 20713-220/05 | 20713-224/05 | 20713-228/05 | 20713-236/05 | – | 4.16 |
| | 25 | 20713-213 | 20713-221/05 | 20713-225/05 | 20713-229/05 | 20713-237/05 | 60713-244 | 4.16 |
|  KTA44858 | 38 | 20713-217 | 20713-221/05 | 20713-225/05 | 20713-229/05 | 20713-237/05 | – | 4.16 |
| | 25 | 20713-214 | 20713-222/05 | 20713-226/05 | 20713-230/05 | 20713-238/05 | 60713-245 | 4.16 |
|  kta44859 | 38 | 20713-218 | 20713-222/05 | 20713-226/05 | 20713-230/05 | 20713-238/05 | – | 4.16 |
| | 25 | 20713-215 | 20713-223/05 | 20713-227/05 | 20713-231/05 | 20713-239/05 | 60713-246 | 4.16 |
|  kta44860 | 38 | 20713-219 | 20713-223/05 | 20713-227/05 | 20713-231/05 | 20713-239/05 | – | 4.16 |

1) Fan housing cannot be ordered without fans

NOTE

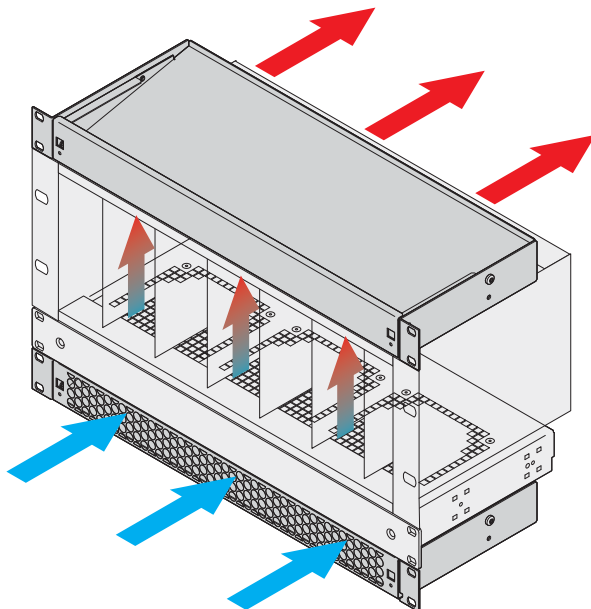
- Unused fan mounting positions are covered with foam material
- Versions for 115 V or with switch available on request
- Fan dimensioning see page 4.18

Climate control – 19" fan trays

1 U AIR DEFLECTOR CHASSIS FOR 19" FAN TRAYS



1 U air deflector chassis (bottom) with 1 U fan tray (top)



Application: air deflector chassis mounted below 19" fan tray, guides the cool air upwards from front; second air deflector chassis at top guides the warm air to the rear

- Optimised cooling together with 19" fan trays
- Vertical buildup of heat is avoided by means of improved airflow
- Fitting options:
 - One fan tray: cool air is drawn in from the front and guided upwards
 - Two fan trays: cool air is drawn in from the front, directed upwards and guided to the rear (see application diagram)
- Versions:
 - With solid front panel to direct airflow
 - With perforated front panel to allow air to flow in/out
- Optional filter mat, simple to swap during operation

DELIVERY COMPRISES (assembled)

| Item | Qty | Description |
|------|-----|--|
| 1 | 1 | Air deflector plate, St, 1 mm, finish Zincor, width 432.8 mm (without side panel) |
| 2 | 2 | Side panel, St, 1.5 mm, finish Zincor; with 19" mounting bracket, powder-coated (see Order information for colour) |
| 3a | 1 | Front panel, perforated, St, 1.5 mm, finish Zincor, powder-coated (see Order information for colour); two quick-release fasteners, black |
| 3b | 1 | Front panel, solid, St, 1.5 mm, finish Zincor, powder-coated (see Order information for colour); two quick-release fasteners, black |
| 4 | 1 | Assembly kit |

ORDER INFORMATION

| 1 U air deflector chassis for 19" fan trays | Depth mm | Colour | Part no. Front panel, perforated | Part no. Front panel, solid |
|---|----------|----------|----------------------------------|-----------------------------|
| for single-row fan trays (3 fans) | 193 | RAL 7035 | 10713-140 | 10713-146 |
| | 193 | RAL 9005 | 10713-142 | 10713-148 |
| | 193 | RAL 9006 | 10713-144 | 10713-150 |
| for double-row fan trays (6 fans) | 330 | RAL 7035 | 10713-141 | 10713-147 |
| | 330 | RAL 9005 | 10713-143 | 10713-149 |
| | 330 | RAL 9006 | 10713-145 | 10713-151 |

Accessories

| | |
|---|------------------|
| Filter mat, class G 2 for 3 fans, PU 3 pieces | 60713-169 |
| Filter mat, class G 2 for 6 fans, PU 3 pieces | 60713-331 |

Climate control – 19" fan trays

AC FANS/REPLACEMENT FANS



01108005

DELIVERY COMPRISES

| Item | Qty | Description |
|------|-----|----------------------------------|
| 1 | 1 | Fan (width 119 mm, depth 119 mm) |

ORDER INFORMATION

| Description | Height mm | Airflow volume m ³ /h | 115 V _{AC} Part no. | 230 V _{AC} Part no. |
|-------------------------------|-----------|----------------------------------|------------------------------|------------------------------|
| Type A | 25 | 84 | 20713-146 | 20713-142 |
| Type B | 25 | 108 | 20713-147 | 20700-001 |
| Type C | 38 | 162 | 20713-244 | 20713-243 |
| Assembly kit for fan PU 1 kit | | | | 21102-013 |

DIMENSIONS AC fans

| Type | Type A | | Type B | | Type C | |
|--|--------|----|--------|-----|--------|-----|
| | 50 | 60 | 50 | 60 | 50 | 60 |
| Frequency in Hz | | | | | | |
| Airflow volume in m ³ /h | 84 | 90 | 108 | 120 | 162 | 192 |
| Noise level per fan in dB(A) | 29 | 30 | 34 | 38 | 37 | 41 |
| Max. static pressure in Pa | 23 | 21 | 41 | 41 | 73 | 88 |
| Max. ambient temperature in °C | 70 | 70 | 70 | 70 | 70 | 70 |
| Power consumption in W | 8 | 7 | 14 | 11 | 15 | 14 |
| Dimensions: height in mm (width 119 mm x depth 119 mm) | 25 | | 25 | | 38 | |

- Please order connecting cable separately, see page 4.13
- Please order protective grille separately, see page 4.17

DC FANS/REPLACEMENT FANS



01108005

DELIVERY COMPRISES

| Item | Qty | Description |
|------|-----|--|
| 1a | 1 | Fan, height 38 mm, with plug connection |
| 1b | 1 | Fan, height 25.5 mm, connecting cable, length 55 mm, connector with 2 x FASTON connectors (2.8 x 0.8 mm) |

ORDER INFORMATION

| Height mm | Airflow volume m ³ /h | Power consumption W | Input voltage V | Part no. |
|-------------------------------|----------------------------------|---------------------|-----------------|------------------|
| 25.5 | 171 | 5.3 | 24 | 20713-172 |
| 38 | 184 | 8 | 12 | 20713-241 |
| 38 | 184 | 8 | 24 | 20713-240 |
| 38 | 184 | 8 | 48 | 20713-242 |
| Assembly kit for fan PU 1 kit | | | | 21102-013 |

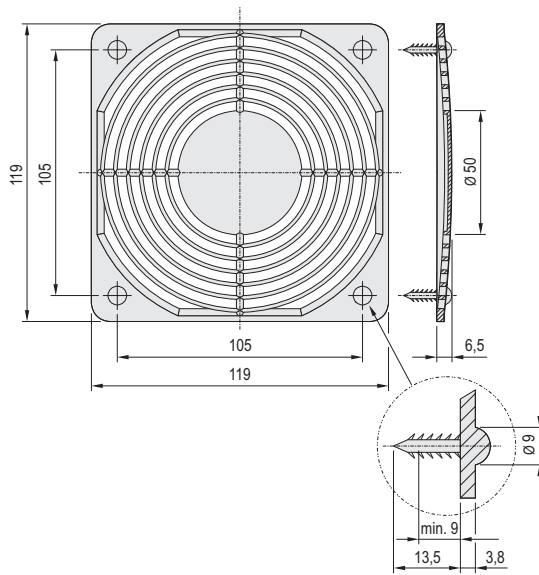
TECHNICAL DATA DC fans

| Voltage in VDC | 24 | 12 | 24 | 48 |
|--|------|-----|-----|-----|
| Dimensions: height in mm (width 119 mm x depth 119 mm) | 25 | 38 | 38 | 38 |
| Airflow volume in m ³ /h | 171 | 184 | 184 | 184 |
| Noise level per fan in dB(A) | 41.5 | 42 | 42 | 42 |
| Max. stat. pressure in Pa | 50.5 | 68 | 68 | 68 |
| Max. ambient temperature in °C | 70 | 70 | 70 | 70 |
| Power consumption in W | 7 | 8 | 8 | 8 |

- Please order connecting cable for 38 mm high fans separately, see page 4.13
- Please order protective grille separately, see page 4.17

Climate control – 19" fan trays

PROTECTIVE GRILLE TO SNAP-IN



01108053

- Protective grille for direct mounting on AC and DC fans

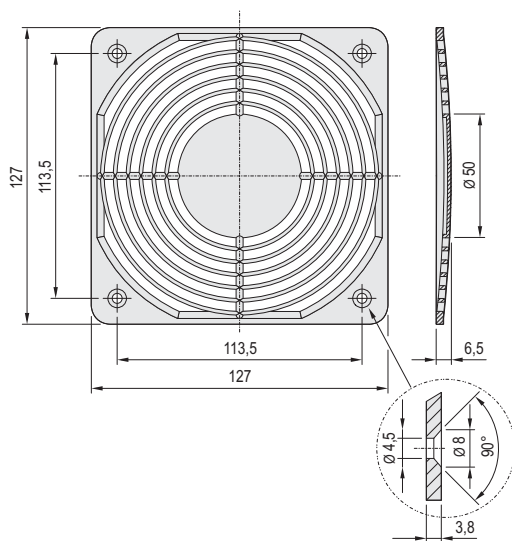
DELIVERY COMPRISES

| Item | Qty | Description |
|------|-----|---|
| 1 | 1 | Fibre glass reinforced plastic (PA), black, in accordance with DIN 31001, UL 94 V-0 |

ORDER INFORMATION

| Description | Part no. |
|--|------------------|
| Protective grille, plastic, to snap-in | 60225-052 |

PROTECTIVE GRILLE, PLASTIC, TO SCREW-ON



01108054

- Protective grille for AC and DC fans
- Grille may be mounted on a front panel or the wall of the housing

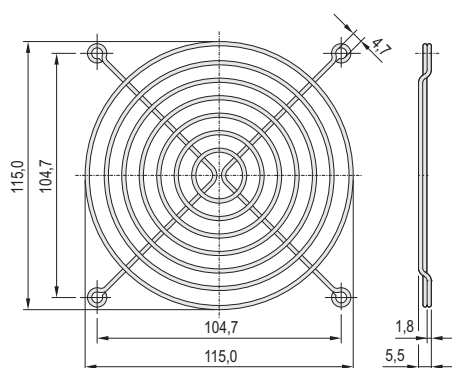
DELIVERY COMPRISES

| Item | Qty | Description |
|------|-----|---|
| 1 | 1 | Fibre glass reinforced plastic (PA), black, in accordance with DIN 31001, UL 94 V-0 |

ORDER INFORMATION

| Description | Part no. |
|--|------------------|
| Protective grille, plastic, to screw-on | 60225-053 |
| Assembly kit for plastic grille (4 screws, 4 washers, 4 nuts M4), PU 1 set | 21102-014 |

PROTECTIVE GRILLE, METAL, TO SCREW-ON



01109050

- Protective grille for direct mounting on AC and DC fans
- Optimised noise level and air resistance

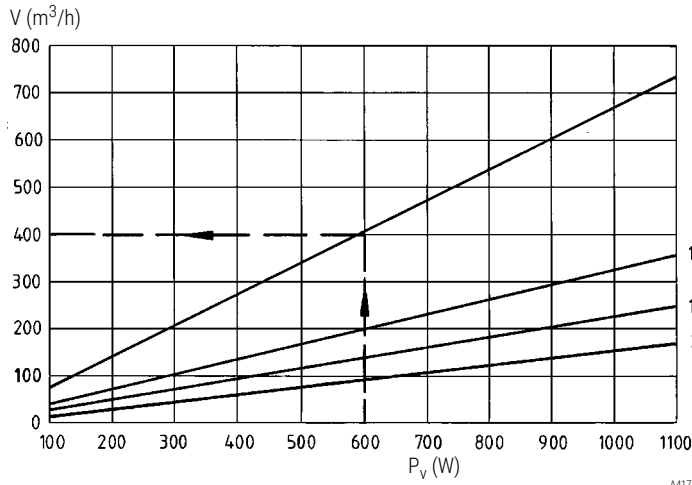
DELIVERY COMPRISES

| Item | Qty | Description |
|------|-----|-------------|
| 1 | 1 | St, 1 mm |

ORDER INFORMATION

| Description | Part no. |
|--|------------------|
| Protective grille, metal, to screw-on | 60197-019 |
| Assembly kit for metal grille (4 screws, 4 washers, 4 nuts M4), PU 1 set | 21102-015 |

Climate control – 19" fan trays



For local heat dissipation, the airflow volume required to expel the heat produced is calculated.

Note

The cabinet ventilation is not taken into account here. The required airflow volume is calculated as follows:

$$V = (f \times P_v) / \Delta T$$

The air constant $f = 3.3 \text{ m}^3\text{K}/\text{Wh}$.

ΔT is the temperature difference between the ambient temperature of the sub-assembly and that of the air drawn in.

Example of readings

- $P_v = 600 \text{ W}$
- air sucked in: $25 \text{ }^\circ\text{C}$
- permissible ambient temperature of the sub-assembly = $30 \text{ }^\circ\text{C}$

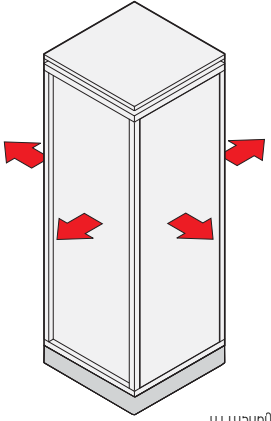
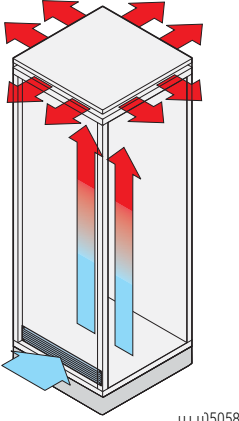
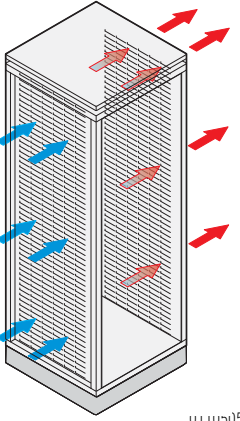
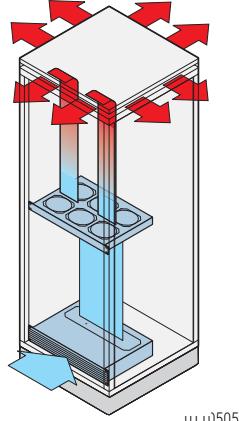
1. $\Delta T = T_i - T_u = 30 \text{ }^\circ\text{C} - 25 \text{ }^\circ\text{C} = 5 \text{ K}$
2. From $P_v = 600 \text{ W}$ to the curve for $\Delta T = 5 \text{ K}$
3. From the intersection point to the airflow volume $V = 400 \text{ m}^3/\text{h}$

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Climate control – 19" fan trays

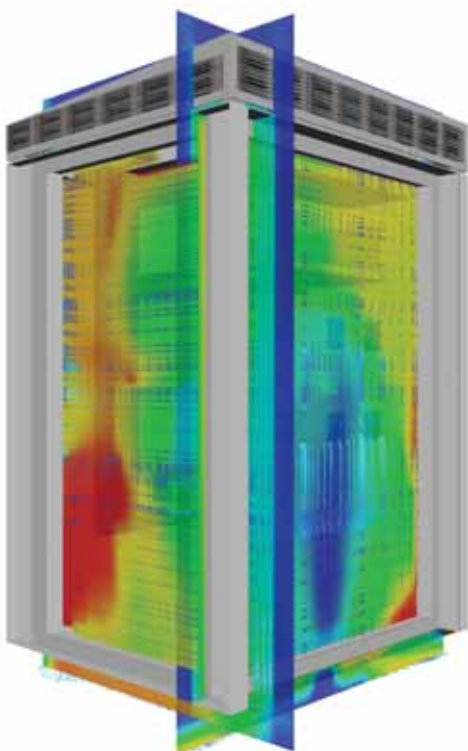
Climate control – Service

PRODUCTS / COOLING CONCEPTS

| Product | Closed cabinet | Raised cover, ventilation slots | Perforated doors | 19" circulation fan, top cover fan |
|--|---|--|---|---|
| Description |  <p>Natural convection through thermal radiation</p> |  <p>Free convection through top opening</p> |  <p>Free convection through openings in doors/rear panels</p> |  <p>Cooling with air</p> |
| Type of protection | ≤ IP 55 | ≤ IP 20 | ≤ IP 20 | ≤ IP 20 |
| Noise level approx. | 0 | 0 | 55 ... 65 dB(A) | 34 ... 67 dB(A) |
| Environmental conditions | $T_i > T_a$ | $T_i > T_a$ | $T_i > T_a$ | $T_i > T_a$ |
| Cooling capacity approx. ¹⁾ | < 500 W | 500 W ... 800 W | 500 W ... 6000 W ²⁾ | < 2000 W |

¹⁾ depending on cabinet size, electronic components, location and room cooling concept
²⁾ > 800 W are only possible with own, active cooling through components like servers, etc.
 T_i = cabinet inner temperature T_a = cabinet ambient temperature

THERMAL SIMULATION



Project support through state-of-the-art simulation technology

As the packing density and integration density of components increases, the transport of waste heat rapidly becomes more difficult. Analyzing heat transport through thermal paste, flow and heat radiation makes it possible to identify hot spots as early as the design phase. We use state-of-the-art numerical analyses and simulation methods to accomplish this. This allows the analysis and optimization of cooling concepts for anything from an assembly to an entire cabinet system at the preliminary stage. Our cooling specialists would be happy to assist you in finding the right cooling concept for your project

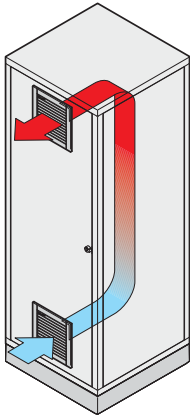
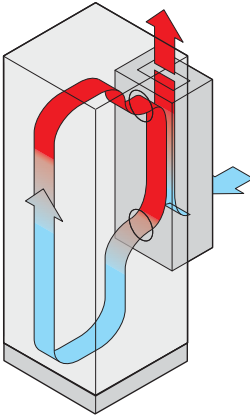
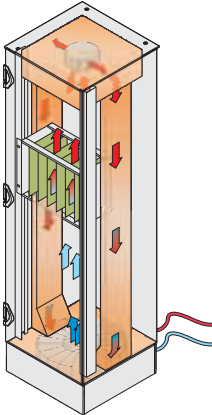
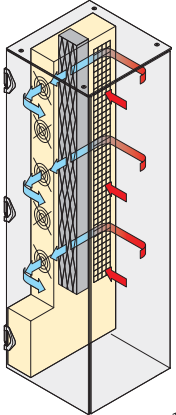
Your advantage:

- Analyzing in detail to eliminate thermal problems at the preliminary stage
- Ensuring the high efficiency and reliability of your systems
- Reducing the number of expensive prototypes and tests
- Reducing expenses and development costs

01103050

Climate control – Service

PRODUCTS/COOLING CONCEPTS

| Product | Air filtered fans | Air conditioners | Air/water heat exchanger (LHX 3) | Air/water heat exchanger (LHX 20/40) |
|--|---|---|--|---|
| Description |  <p>01102050</p> <p>Cooling with air</p> |  <p>01103001</p> <p>Cooling with coolant</p> |  <p>01100/055</p> <p>Cooling with water</p> |  <p>01005081</p> <p>Cooling with water</p> |
| Type of protection | ≤ IP 55 | ≥ IP 55 | ≥ IP 55 | ≥ IP 55 |
| Noise level | 39 ... 71 dB(A) | 60 ... 81 dB(A) | 45.2 dB(A) | 50 ... 70 dB(A) |
| Environmental conditions | $T_i > T_a$ | $T_a \leq 55\text{ °C}$ | $T_a \leq 70\text{ °C}$ | $T_a \leq 70\text{ °C}$ |
| Cooling capacity approx. ¹⁾ | < 1500 W | < 17000 W | < 3000 W | < 40000 W |

1) depending on cabinet size, electronic components, location and room cooling concept
 T_i = cabinet inner temperature T_a = cabinet ambient temperature

OPTIMAL TEST EQUIPMENT



Climate bay testing

Being part of the Pentair group, Schroff and McLean look back on 50 years of experience and are reknown around the world for their expertise in efficient cooling of industrial facilities and equipment.

Based on our own laboratory test chambers with the most modern equipement in Europe, America and Asia:

- Walk-in climate chamber to test and optimize completely integrated cabinets and systems under different conditions
- Smaller climate chambers to test components
- Airflow and air resistance measurements in a wind tunnel
- Noise level measurements
- Tests in accordance with DIN EN 60529 to determine the type of protection (IP)

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