



# Aircooled condensers HTC-N



Reliable performance & excellent energy yield



## Aircooled condensers NH<sub>3</sub>

## HTC-N



### General

The HTC-N aircooled condenser range includes 4 basic types with 1 to 12 fans and duties from 22 to 930 kW at 15 K temperature difference.

### Design

Coil block : Stainless steel tubing with aluminium fins.

Tube diameter : 13 mm

Tube pitch : 50 x 50 mm triangle

Fin spacing : 2.25 mm

Other fin spacings up to 4 mm available on request.

Coil blocks are pressure tested at 28 bar dry air.

Casing and framework are of pregalvanized sheet steel (Sendzimir) with an epoxy coating on both sides. Colour scheme: light-grey RAL 7035, mounting feet models 076, 090, 091 and 100, dark-grey RAL 7016. Other colours are available at an extra price. All condensers are provided with removable header panels.

#### Condenser models 076, 090, 091 and 100

Floating construction of the condenser coil block. On request the condensers can be fitted with inspection hatches (extra price).

### Air direction

Condensers type HTC-N can be supplied for horizontal or vertical air flow.

#### Condenser models 076, 090, 091 and 100 :

standard vertical air flow.

On request also available for horizontal air flow.

When ordering without air flow indication, the standard execution will be supplied.

### Corrosion protection

The standard condensers have a high corrosion resistance through selected materials, surface treatment and construction. For application in aggressive surroundings (coastal and industrial areas) following designs are available at an extra charge:

- fins of seawater resistant aluminium alloy (57S/5052)
- fins of prepainted aluminium
- finned coils coated after assembling

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### Construction based on HTC

HTC-N air cooled condensers are identical in construction to type HTC air cooled condensers.

These condensers HTC are tested and certified by Eurovent according to ENV 327 European standard.

This extensive testing procedure comprises :

- capacities under standardised conditions
- fan capacities
- air flow data
- sound levels

### Type indication

Example : **HTC-N 076 . 124 - 930**

**HTC-N** : Aircooled condenser with St/Al coil block

**076** : Condenser type  
There are 4 basic types with different fan diameters

**1••** : Number of separated coils

**•2•** : Number of fans per coil

**••4** : Number of tube rows in air direction

**930** : Fan speed

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### Capacities HTC-N ... . 2..

| Type                         | Capacity kW |        | Airflow m <sup>3</sup> /h |       | dB(A) |        | Capacity kW |       | Airflow m <sup>3</sup> /h |        | dB(A) |       | Cap.  | Air | dB(A) | Cap. | Air | dB(A) |
|------------------------------|-------------|--------|---------------------------|-------|-------|--------|-------------|-------|---------------------------|--------|-------|-------|-------|-----|-------|------|-----|-------|
| HTCN                         | H           | L      | H                         | L     | H/L   | H      | L           | H     | L                         | H      | L     | H/L   | L     | H/L |       | L    | H/L |       |
| <b>HTC-N 076 n = 930 rpm</b> |             |        |                           |       |       |        |             |       |                           |        |       |       |       |     |       |      |     |       |
| 076 . 212 - ... *            | 68.1        | 29300  | 56                        | 68.1  | 47.7  | 29300  | 14600       | 56/42 | 59.3                      | 20700  | 49    | 43.0  | 12000 | 36  |       |      |     |       |
| 076 . 213 - ...              | 89.4        | 27700  | 56                        | 89.4  | 59.8  | 27700  | 14200       | 56/42 | 75.4                      | 19600  | 49    | 49.0  | 10600 | 36  |       |      |     |       |
| 076 . 214 - ...              | 102.8       | 26200  | 56                        | 102.8 | 65.4  | 26200  | 13900       | 56/42 | 85.5                      | 18600  | 49    | 50.6  | 9300  | 36  |       |      |     |       |
| <b>n = 935 / 425 rpm</b>     |             |        |                           |       |       |        |             |       |                           |        |       |       |       |     |       |      |     |       |
| 076 . 222 - ...              | 138.7       | 58600  | 59                        | 138.7 | 88.3  | 58600  | 29100       | 59/45 | 111.0                     | 41500  | 52    | 86.0  | 24000 | 39  |       |      |     |       |
| 076 . 223 - ...              | 187.8       | 55400  | 59                        | 187.8 | 110.8 | 55400  | 28400       | 59/45 | 146.7                     | 39200  | 52    | 98.0  | 21200 | 39  |       |      |     |       |
| 076 . 224 - ...              | 208.3       | 52500  | 59                        | 208.3 | 126.8 | 52500  | 27800       | 59/45 | 160.2                     | 37200  | 52    | 101.2 | 18600 | 39  |       |      |     |       |
| <b>n = 690 rpm</b>           |             |        |                           |       |       |        |             |       |                           |        |       |       |       |     |       |      |     |       |
| 076 . 232 - ...              | 200.4       | 87900  | 61                        | 200.4 | 142.5 | 87900  | 43700       | 61/47 | 175.8                     | 62200  | 54    | 129.0 | 36000 | 41  |       |      |     |       |
| 076 . 233 - ...              | 271.4       | 83200  | 61                        | 271.4 | 167.5 | 83200  | 42700       | 61/47 | 208.5                     | 58700  | 54    | 147.0 | 31800 | 41  |       |      |     |       |
| 076 . 234 - ...              | 329.3       | 78700  | 61                        | 329.3 | 187.3 | 78700  | 41700       | 61/47 | 253.6                     | 55700  | 54    | 151.8 | 27900 | 41  |       |      |     |       |
| <b>n = 325 rpm</b>           |             |        |                           |       |       |        |             |       |                           |        |       |       |       |     |       |      |     |       |
| 076 . 242 - ...              | 278.1       | 117200 | 62                        | 278.1 | 176.7 | 117200 | 58300       | 62/48 | 222.3                     | 82900  | 55    | 172.0 | 48000 | 42  |       |      |     |       |
| 076 . 243 - ...              | 342.7       | 110900 | 62                        | 342.7 | 224.8 | 110900 | 56900       | 62/48 | 281.1                     | 78300  | 55    | 196.0 | 42400 | 42  |       |      |     |       |
| 076 . 244 - ...              | 389.9       | 104900 | 62                        | 389.9 | 255.3 | 104900 | 55600       | 62/48 | 327.7                     | 74300  | 55    | 202.4 | 37200 | 42  |       |      |     |       |
| 076 . 252 - ...              | 380.4       | 146500 | 63                        | 380.4 | 224.0 | 146500 | 72800       | 63/49 | 306.2                     | 103700 | 56    | 215.0 | 60000 | 43  |       |      |     |       |
| 076 . 253 - ...              | 470.8       | 138600 | 63                        | 470.8 | 277.4 | 138600 | 71100       | 63/49 | 367.7                     | 97900  | 56    | 245.0 | 53000 | 43  |       |      |     |       |
| 076 . 254 - ...              | 522.4       | 131200 | 63                        | 522.4 | 317.4 | 131200 | 69500       | 63/49 | 401.2                     | 92900  | 56    | 253.0 | 46500 | 43  |       |      |     |       |
| 076 . 262 - ...              | 373.0       | 175800 | 64                        | 373.0 | 271.0 | 175800 | 87400       | 64/50 | 329.7                     | 124400 | 57    | 258.0 | 72000 | 44  |       |      |     |       |
| 076 . 263 - ...              | 593.7       | 166300 | 64                        | 593.7 | 337.3 | 166300 | 85300       | 64/50 | 465.5                     | 117500 | 57    | 294.0 | 63600 | 44  |       |      |     |       |
| 076 . 264 - ...              | 659.5       | 157400 | 64                        | 659.5 | 375.0 | 157400 | 83500       | 64/50 | 506.6                     | 111500 | 57    | 303.6 | 55800 | 44  |       |      |     |       |

H = High fan speed

L = Low fan speed

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# HTC-N

## Capacities HTC-N ... . 2\*\*

| Type              | Capacity kW              |       | Airflow m <sup>3</sup> /h |        | dB(A) | Capacity kW              |       | Airflow m <sup>3</sup> /h |        | dB(A) | Capacity kW              |       | Airflow m <sup>3</sup> /h |        | dB(A) |
|-------------------|--------------------------|-------|---------------------------|--------|-------|--------------------------|-------|---------------------------|--------|-------|--------------------------|-------|---------------------------|--------|-------|
|                   | H                        | L     | H                         | L      |       | H/L                      | H     | L                         | H      |       | L                        | H/L   | H                         | L      |       |
| <b>HTC-N 090</b>  | <b>n = 850 / 610 rpm</b> |       |                           |        |       | <b>n = 680 / 520 rpm</b> |       |                           |        |       | <b>n = 860 / 660 rpm</b> |       |                           |        |       |
| 090 . 212 - ...   | 121.1                    | 102.7 | 61400                     | 45400  | 60/53 | 104.7                    | 87.3  | 46800                     | 34400  | 55/49 | 99.9                     | 86.0  | 43400                     | 33800  | 57/51 |
| 090 . 213 - ...   | 159.0                    | 132.1 | 57000                     | 42200  | 60/53 | 133.4                    | 109.2 | 42800                     | 31800  | 55/49 | 130.3                    | 107.3 | 41400                     | 31000  | 57/51 |
| 090 . 214 - ...   | 173.9                    | 140.8 | 53200                     | 39600  | 60/53 | 140.7                    | 127.2 | 39600                     | 29600  | 55/49 | 140.7                    | 124.2 | 39600                     | 28800  | 57/51 |
| 090 . 222 - ...   | 245.0                    | 207.0 | 123000                    | 90800  | 63/56 | 211.0                    | 175.6 | 93800                     | 68800  | 58/52 | 201.2                    | 172.9 | 86600                     | 67400  | 60/54 |
| 090 . 223 - ...   | 321.4                    | 266.1 | 114000                    | 84400  | 63/56 | 268.6                    | 234.8 | 85600                     | 63600  | 58/52 | 262.4                    | 231.1 | 82800                     | 62000  | 60/54 |
| 090 . 224 - ...   | 349.5                    | 315.7 | 106600                    | 79200  | 63/56 | 315.1                    | 255.6 | 79000                     | 59200  | 58/52 | 315.1                    | 250.1 | 79000                     | 57800  | 60/54 |
| 090 . 232 - ...   | 382.0                    | 323.6 | 184400                    | 136000 | 65/58 | 330.0                    | 275.2 | 140600                    | 103200 | 60/54 | 314.8                    | 271.1 | 130000                    | 101200 | 62/56 |
| 090 . 233 - ...   | 483.9                    | 400.2 | 170800                    | 126600 | 65/58 | 403.9                    | 329.7 | 128200                    | 95600  | 60/54 | 394.5                    | 323.6 | 124200                    | 93200  | 62/56 |
| 090 . 234 - ...   | 547.2                    | 475.3 | 159800                    | 119000 | 65/58 | 474.4                    | 383.7 | 118600                    | 88800  | 60/54 | 474.4                    | 375.4 | 118600                    | 86600  | 62/56 |
| 090 . 242 - ...   | 492.8                    | 415.4 | 245800                    | 181400 | 66/59 | 423.9                    | 352.0 | 187600                    | 137600 | 61/55 | 403.8                    | 346.7 | 173200                    | 134800 | 63/57 |
| 090 . 243 - ...   | 621.4                    | 569.4 | 227800                    | 169000 | 66/59 | 574.5                    | 472.7 | 171000                    | 127400 | 61/55 | 561.5                    | 464.3 | 165600                    | 124200 | 63/57 |
| 090 . 244 - ...   | 777.4                    | 634.4 | 213000                    | 158600 | 66/59 | 634.2                    | 512.5 | 158000                    | 118400 | 61/55 | 634.2                    | 501.4 | 158000                    | 115400 | 63/57 |
| 090 . 252 - ...   | 654.1                    | 555.6 | 307400                    | 226800 | 67/60 | 566.4                    | 473.5 | 234400                    | 172000 | 62/56 | 540.7                    | 466.6 | 216600                    | 168600 | 64/58 |
| 090 . 253 - ...   | 830.9                    | 688.1 | 284800                    | 211200 | 67/60 | 694.7                    | 567.9 | 213800                    | 159200 | 62/56 | 678.7                    | 557.6 | 207000                    | 155200 | 64/58 |
| 090 . 254 - ...   | 940.7                    | 763.5 | 266400                    | 198200 | 67/60 | 762.2                    | 615.1 | 197600                    | 148000 | 62/56 | 762.2                    | 647.9 | 197600                    | 144200 | 64/58 |
| <b>HTC-N 091</b>  | <b>n = 850 / 610 rpm</b> |       |                           |        |       | <b>n = 680 / 520 rpm</b> |       |                           |        |       | <b>n = 860 / 660 rpm</b> |       |                           |        |       |
| 091 . 212 - ...   | 124.5                    | 117.0 | 64400                     | 47400  | 60/53 | 120.3                    | 99.9  | 49800                     | 36200  | 55/49 | 112.7                    | 98.6  | 44600                     | 35400  | 57/51 |
| 091 . 213 - ...   | 158.5                    | 151.3 | 60600                     | 44800  | 60/53 | 157.4                    | 125.9 | 47600                     | 34000  | 55/49 | 147.3                    | 124.1 | 43000                     | 33200  | 57/51 |
| 091 . 214 - ...   | 202.9                    | 164.5 | 57400                     | 42400  | 60/53 | 166.4                    | 133.1 | 43200                     | 32000  | 55/49 | 161.7                    | 130.7 | 41600                     | 31200  | 57/51 |
| 091 . 222 - ...   | 279.3                    | 236.0 | 128600                    | 94800  | 63/56 | 242.7                    | 200.9 | 99600                     | 72600  | 58/52 | 227.2                    | 198.3 | 89000                     | 70800  | 60/54 |
| 091 . 223 - ...   | 368.4                    | 305.1 | 121200                    | 89400  | 63/56 | 317.7                    | 253.2 | 95400                     | 67800  | 58/52 | 296.8                    | 249.3 | 86000                     | 66200  | 60/54 |
| 091 . 224 - ...   | 408.1                    | 330.1 | 114800                    | 85000  | 63/56 | 334.3                    | 293.3 | 86200                     | 64200  | 58/52 | 324.8                    | 287.8 | 83200                     | 62600  | 60/54 |
| 091 . 232 - ...   | 375.4                    | 365.7 | 193000                    | 142200 | 65/58 | 375.9                    | 312.2 | 149400                    | 108800 | 60/54 | 352.3                    | 308.1 | 133600                    | 106200 | 62/56 |
| 091 . 233 - ...   | 554.8                    | 458.8 | 181600                    | 134200 | 65/58 | 477.8                    | 380.2 | 143000                    | 101800 | 60/54 | 446.2                    | 374.7 | 128800                    | 99400  | 62/56 |
| 091 . 234 - ...   | 632.9                    | 513.1 | 172200                    | 127400 | 65/58 | 519.1                    | 440.5 | 129400                    | 96200  | 60/54 | 505.2                    | 432.2 | 124800                    | 93800  | 62/56 |
| 091 . 242 - ...   | 562.1                    | 474.1 | 257200                    | 189600 | 66/59 | 487.7                    | 403.1 | 199200                    | 145200 | 61/55 | 456.3                    | 397.8 | 178000                    | 141600 | 63/57 |
| 091 . 243 - ...   | 719.5                    | 592.3 | 242200                    | 179000 | 66/59 | 617.3                    | 535.7 | 190800                    | 135800 | 61/55 | 575.8                    | 528.0 | 171800                    | 132400 | 63/57 |
| 091 . 244 - ...   | 818.4                    | 661.7 | 229400                    | 170000 | 66/59 | 669.3                    | 534.5 | 172600                    | 128200 | 61/55 | 711.0                    | 577.4 | 166400                    | 125200 | 63/57 |
| 091 . 252 - ...   | 690.1                    | 580.6 | 321600                    | 237000 | 67/60 | 597.5                    | 533.4 | 249000                    | 181400 | 62/56 | 600.8                    | 526.5 | 222600                    | 177000 | 64/58 |
| 091 . 253 - ...   | 881.4                    | 783.3 | 302800                    | 223600 | 67/60 | 815.8                    | 650.6 | 238400                    | 169800 | 62/56 | 762.8                    | 640.8 | 214800                    | 165600 | 64/58 |
| 091 . 254 - ...   | 1080.9                   | 877.8 | 286800                    | 212400 | 67/60 | 888.5                    | 712.4 | 215600                    | 160400 | 62/56 | 863.8                    | 698.5 | 208000                    | 156400 | 64/58 |
| <b>HTC-N 100</b>  | <b>n = 670 / 520 rpm</b> |       |                           |        |       | <b>n = 420 / 310 rpm</b> |       |                           |        |       | <b>n = 380 / 250 rpm</b> |       |                           |        |       |
| 100 . 212 - ...   | 110.3                    | 90.9  | 54700                     | 39900  | 62/50 | 102.8                    | 81.3  | 38000                     | 27000  | 45/37 | 95.2                     | 68.0  | 34000                     | 21600  | 42/32 |
| 100 . 213 - ...   | 139.8                    | 111.9 | 50100                     | 36200  | 62/50 | 126.5                    | 99.9  | 33400                     | 23400  | 45/37 | 114.1                    | 79.8  | 29000                     | 18000  | 42/32 |
| 100 . 214 - ...   | 175.3                    | 133.7 | 46500                     | 32300  | 62/50 | 141.2                    | -     | 28600                     | -      | 45    | 123.0                    | -     | 26000                     | -      | 42    |
| 100 . 222 - ...   | 221.4                    | 182.4 | 109500                    | 79700  | 65/53 | 206.9                    | 163.1 | 76000                     | 54000  | 48/40 | 191.4                    | 150.5 | 68000                     | 43200  | 45/35 |
| 100 . 223 - ...   | 280.2                    | 224.2 | 100200                    | 72400  | 65/53 | 228.8                    | 200.7 | 66800                     | 46800  | 48/40 | 242.3                    | 159.8 | 58000                     | 36000  | 45/35 |
| 100 . 224 - ...   | 352.1                    | 268.3 | 93100                     | 64700  | 65/53 | 284.4                    | -     | 57200                     | -      | 48    | 247.5                    | -     | 52000                     | -      | 45    |
| 100 . 232 - ...   | 332.4                    | 273.9 | 164200                    | 119600 | 67/55 | 321.3                    | 254.1 | 114000                    | 81000  | 50/42 | 297.4                    | 226.3 | 102000                    | 64800  | 47/37 |
| 100 . 233 - ...   | 420.7                    | 336.4 | 150400                    | 108600 | 67/55 | 381.6                    | 283.6 | 100200                    | 70200  | 50/42 | 343.9                    | 231.3 | 87000                     | 54000  | 47/37 |
| 100 . 234 - ...   | 544.1                    | 414.9 | 139600                    | 97000  | 67/55 | 426.7                    | -     | 85800                     | -      | 50    | 370.6                    | -     | 78000                     | -      | 47    |
| 100 . 242 - ... * | 444.1                    | 365.4 | 219000                    | 159400 | 68/56 | 415.2                    | 358.1 | 152000                    | 108000 | 51/43 | 383.8                    | 302.0 | 136000                    | 86400  | 48/38 |
| 100 . 243 - ...   | 623.4                    | 498.9 | 200500                    | 144800 | 68/56 | 538.0                    | 403.4 | 133600                    | 93600  | 51/43 | 486.2                    | 320.6 | 116000                    | 72000  | 48/38 |
| 100 . 244 - ...   | 706.1                    | 537.4 | 186100                    | 129300 | 68/56 | 569.9                    | -     | 114400                    | -      | 51    | 494.8                    | -     | 104000                    | -      | 48    |
| 100 . 252 - ... * | 602.5                    | 498.8 | 273700                    | 199300 | 69/57 | 440.5                    | 383.8 | 190000                    | 135000 | 52/44 | 508.7                    | 365.4 | 170000                    | 108000 | 49/39 |
| 100 . 253 - ... * | 765.5                    | 611.5 | 250600                    | 181000 | 69/57 | 654.0                    | 486.3 | 167000                    | 117000 | 52/44 | 589.2                    | 412.7 | 145000                    | 90000  | 49/39 |
| 100 . 254 - ...   | 927.2                    | 708.1 | 232700                    | 161600 | 69/57 | 687.5                    | -     | 143000                    | -      | 52    | 598.4                    | -     | 130000                    | -      | 49    |

H = High fan speed

L = Low fan speed

Note : Actual fan speed may differ from the values as indicated on the motor name plate.

## Aircooled condensers NH<sub>3</sub>

## HTC-N

### Technical Data HTC-N ●●● . 2●●

| Type                               | Refrigerant conn. mm |        | Int. vol. dm <sup>3</sup> | Sur-face m <sup>2</sup> | Weight kg | Dimensions mm |             |        |   |
|------------------------------------|----------------------|--------|---------------------------|-------------------------|-----------|---------------|-------------|--------|---|
|                                    | in                   | out    |                           |                         |           | A             | B           | C      | D |
| <b>HTC-N 076 n = 930 rpm</b>       |                      |        |                           |                         |           |               |             |        |   |
| 076.212-...                        | 2x26.9               | 2x26.9 | 14                        | 205                     | 273       |               |             |        |   |
| 076.213-...                        | 2x26.9               | 2x26.9 | 22                        | 308                     | 320       | 2000          | see page 15 | 1x1400 |   |
| 076.214-...                        | 2x26.9               | 2x26.9 | 29                        | 410                     | 366       |               |             |        |   |
| 076.222-...                        | 2x33.7               | 2x26.9 | 26                        | 410                     | 538       |               |             |        |   |
| 076.223-...                        | 2x33.7               | 2x26.9 | 39                        | 615                     | 628       | 3400          | see page 15 | 2x1400 |   |
| 076.224-...                        | 2x33.7               | 2x26.9 | 52                        | 820                     | 717       |               |             |        |   |
| 076.232-...                        | 2x33.7               | 2x26.9 | 41                        | 615                     | 812       |               |             |        |   |
| 076.233-...                        | 2x42.4               | 2x26.9 | 61                        | 923                     | 949       | 4800          | see page 15 | 3x1400 |   |
| 076.234-...                        | 2x42.4               | 2x33.7 | 81                        | 1230                    | 1085      |               |             |        |   |
| 076.242-...                        | 2x42.4               | 2x33.7 | 52                        | 820                     | 1078      |               |             |        |   |
| 076.243-...                        | 2x42.4               | 2x33.7 | 79                        | 1230                    | 1257      | 6200          | see page 15 | 4x1400 |   |
| 076.244-...                        | 2x48.3               | 2x33.7 | 105                       | 1640                    | 1435      |               |             |        |   |
| 076.252-...                        | 2x42.4               | 2x33.7 | 64                        | 1025                    | 1343      |               |             |        |   |
| 076.253-...                        | 2x48.3               | 2x42.4 | 96                        | 1538                    | 1564      | 7600          | see page 15 | 5x1400 |   |
| 076.254-...                        | 2x60.3               | 2x42.4 | 128                       | 2050                    | 1786      |               |             |        |   |
| 076.262-...                        | 2x48.3               | 2x33.7 | 76                        | 1230                    | 1608      |               |             |        |   |
| 076.263-...                        | 2x60.3               | 2x42.4 | 113                       | 1845                    | 1872      | 9000          | see page 15 | 6x1400 |   |
| 076.264-...                        | 2x60.3               | 2x42.4 | 151                       | 2460                    | 2137      |               |             |        |   |
| <b>HTC-N 090 n = 850 / 610 rpm</b> |                      |        |                           |                         |           |               |             |        |   |
| 090.212-...                        | 2x26.9               | 2x26.9 | 17                        | 246                     | 482       |               |             |        |   |
| 090.213-...                        | 2x33.7               | 2x26.9 | 26                        | 369                     | 538       | 2000          | see page 15 | 1x1400 |   |
| 090.214-...                        | 2x33.7               | 2x26.9 | 35                        | 492                     | 593       |               |             |        |   |
| 090.222-...                        | 2x42.4               | 2x26.9 | 31                        | 492                     | 954       |               |             |        |   |
| 090.223-...                        | 2x42.4               | 2x33.7 | 47                        | 738                     | 1061      | 3400          | see page 15 | 2x1400 |   |
| 090.224-...                        | 2x42.4               | 2x33.7 | 62                        | 984                     | 1168      |               |             |        |   |
| 090.232-...                        | 2x42.4               | 2x33.7 | 49                        | 738                     | 1437      |               |             |        |   |
| 090.233-...                        | 2x48.3               | 2x33.7 | 73                        | 1107                    | 1600      | 4800          | see page 15 | 3x1400 |   |
| 090.234-...                        | 2x48.3               | 2x42.4 | 98                        | 1476                    | 1764      |               |             |        |   |
| 090.242-...                        | 2x48.3               | 2x33.7 | 63                        | 984                     | 1909      |               |             |        |   |
| 090.243-...                        | 2x60.3               | 2x42.4 | 94                        | 1476                    | 2124      | 6200          | see page 15 | 4x1400 |   |
| 090.244-...                        | 2x60.3               | 2x42.4 | 126                       | 1968                    | 2338      |               |             |        |   |
| 090.252-...                        | 2x60.3               | 2x42.4 | 77                        | 1230                    | 2382      |               |             |        |   |
| 090.253-...                        | 2x76.1               | 2x48.3 | 115                       | 1845                    | 2647      | 7600          | see page 15 | 5x1400 |   |
| 090.254-...                        | 2x76.1               | 2x48.3 | 154                       | 2460                    | 2913      |               |             |        |   |

### Technical Data HTC-N ●●● . 2●●

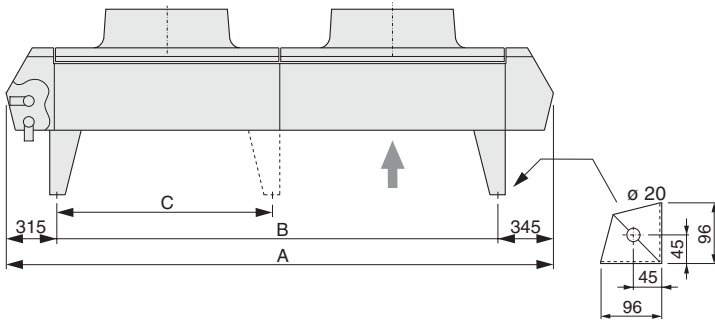
| Type                               | Refrigerant conn. mm |        | Int. vol. dm <sup>3</sup> | Sur-face m <sup>2</sup> | Weight kg | Dimensions mm |             |        |   |
|------------------------------------|----------------------|--------|---------------------------|-------------------------|-----------|---------------|-------------|--------|---|
|                                    | in                   | out    |                           |                         |           | A             | B           | C      | D |
| <b>HTC-N 091 n = 850 / 610 rpm</b> |                      |        |                           |                         |           |               |             |        |   |
| 091.212-...                        | 2x26.9               | 2x26.9 | 21                        | 305                     | 527       |               |             |        |   |
| 091.213-...                        | 2x33.7               | 2x26.9 | 31                        | 459                     | 596       | 2350          | see page 15 | 1x1750 |   |
| 091.214-...                        | 2x33.7               | 2x26.9 | 41                        | 610                     | 665       |               |             |        |   |
| 091.222-...                        | 2x42.4               | 2x26.9 | 42                        | 610                     | 1056      |               |             |        |   |
| 091.223-...                        | 2x42.4               | 2x33.7 | 63                        | 917                     | 1194      | 4100          | see page 15 | 2x1750 |   |
| 091.224-...                        | 2x42.4               | 2x33.7 | 84                        | 1219                    | 1331      |               |             |        |   |
| 091.232-...                        | 2x42.4               | 2x33.7 | 59                        | 915                     | 1574      |               |             |        |   |
| 091.233-...                        | 2x48.3               | 2x42.4 | 89                        | 1376                    | 1775      | 5850          | see page 15 | 3x1750 |   |
| 091.234-...                        | 2x60.3               | 2x42.4 | 119                       | 1829                    | 1977      |               |             |        |   |
| 091.242-...                        | 2x48.3               | 2x42.4 | 77                        | 1219                    | 2092      |               |             |        |   |
| 091.243-...                        | 2x60.3               | 2x42.4 | 115                       | 1835                    | 2357      | 7600          | see page 15 | 4x1750 |   |
| 091.244-...                        | 2x60.3               | 2x42.4 | 154                       | 2439                    | 2623      |               |             |        |   |
| 091.252-...                        | 2x60.3               | 2x42.4 | 94                        | 1524                    | 2610      |               |             |        |   |
| 091.253-...                        | 2x76.1               | 2x48.3 | 141                       | 2293                    | 2939      | 9350          | see page 15 | 5x1750 |   |
| 091.254-...                        | 2x76.1               | 2x48.3 | 188                       | 3049                    | 3296      |               |             |        |   |
| <b>HTC-N 100 n = 670 / 520 rpm</b> |                      |        |                           |                         |           |               |             |        |   |
| 100.212-...                        | 2x26.9               | 2x26.9 | 21                        | 305                     | 527       |               |             |        |   |
| 100.213-...                        | 2x33.7               | 2x26.9 | 31                        | 459                     | 596       | 2350          | see page 15 | 1x1750 |   |
| 100.214-...                        | 2x33.7               | 2x26.9 | 41                        | 610                     | 665       |               |             |        |   |
| 100.222-...                        | 2x42.4               | 2x26.9 | 42                        | 610                     | 1056      |               |             |        |   |
| 100.223-...                        | 2x42.4               | 2x33.7 | 63                        | 917                     | 1194      | 4100          | see page 15 | 2x1750 |   |
| 100.224-...                        | 2x42.4               | 2x33.7 | 84                        | 1219                    | 1331      |               |             |        |   |
| 100.232-...                        | 2x42.4               | 2x33.7 | 59                        | 915                     | 1574      |               |             |        |   |
| 100.233-...                        | 2x48.3               | 2x42.4 | 89                        | 1376                    | 1775      | 5850          | see page 15 | 3x1750 |   |
| 100.234-...                        | 2x60.3               | 2x42.4 | 119                       | 1829                    | 1977      |               |             |        |   |
| 100.242-...                        | 2x48.3               | 2x42.4 | 77                        | 1219                    | 2092      |               |             |        |   |
| 100.243-...                        | 2x60.3               | 2x42.4 | 115                       | 1835                    | 2357      | 7600          | see page 15 | 4x1750 |   |
| 100.244-...                        | 2x60.3               | 2x42.4 | 154                       | 2439                    | 2623      |               |             |        |   |
| 100.252-...                        | 2x60.3               | 2x42.4 | 94                        | 1524                    | 2610      |               |             |        |   |
| 100.253-...                        | 2x76.1               | 2x48.3 | 141                       | 2293                    | 2939      | 9350          | see page 15 | 5x1750 |   |
| 100.254-...                        | 2x76.1               | 2x48.3 | 188                       | 3049                    | 3296      |               |             |        |   |
| <b>HTC-N 100 n = 420 / 310 rpm</b> |                      |        |                           |                         |           |               |             |        |   |
| 100.212-...                        | 2x26.9               | 2x26.9 | 21                        | 305                     | 527       |               |             |        |   |
| 100.213-...                        | 2x33.7               | 2x26.9 | 31                        | 459                     | 596       | 2350          | see page 15 | 1x1750 |   |
| 100.214-...                        | 2x33.7               | 2x26.9 | 41                        | 610                     | 665       |               |             |        |   |
| 100.222-...                        | 2x42.4               | 2x26.9 | 42                        | 610                     | 1056      |               |             |        |   |
| 100.223-...                        | 2x42.4               | 2x33.7 | 63                        | 917                     | 1194      | 4100          | see page 15 | 2x1750 |   |
| 100.224-...                        | 2x42.4               | 2x33.7 | 84                        | 1219                    | 1331      |               |             |        |   |
| 100.232-...                        | 2x42.4               | 2x33.7 | 59                        | 915                     | 1574      |               |             |        |   |
| 100.233-...                        | 2x48.3               | 2x42.4 | 89                        | 1376                    | 1775      | 5850          | see page 15 | 3x1750 |   |
| 100.234-...                        | 2x60.3               | 2x42.4 | 119                       | 1829                    | 1977      |               |             |        |   |
| 100.242-...                        | 2x48.3               | 2x42.4 | 77                        | 1219                    | 2092      |               |             |        |   |
| 100.243-...                        | 2x60.3               | 2x42.4 | 115                       | 1835                    | 2357      | 7600          | see page 15 | 4x1750 |   |
| 100.244-...                        | 2x60.3               | 2x42.4 | 154                       | 2439                    | 2623      |               |             |        |   |
| 100.252-...                        | 2x60.3               | 2x42.4 | 94                        | 1524                    | 2610      |               |             |        |   |
| 100.253-...                        | 2x76.1               | 2x48.3 | 141                       | 2293                    | 2939      | 9350          | see page 15 | 5x1750 |   |
| 100.254-...                        | 2x76.1               | 2x48.3 | 188                       | 3049                    | 3296      |               |             |        |   |

# Aircooled condensers NH<sub>3</sub>

# HTC-N

HTC-N 076 / 090 / 091 / 100 . 2••  
Vertical Air Direction

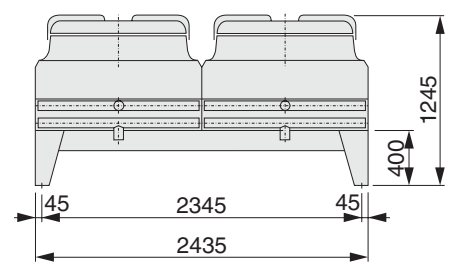
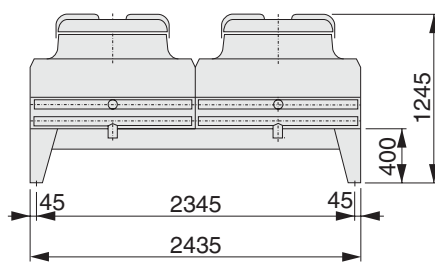
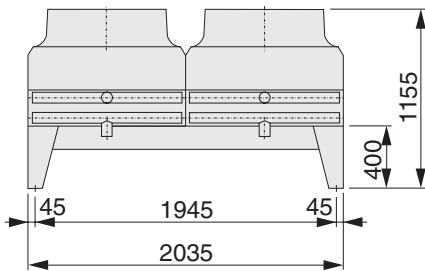
Side View



HTC-N 076 . 2••

HTC-N 090 . 2••

HTC-N 091 / 100 . 2••

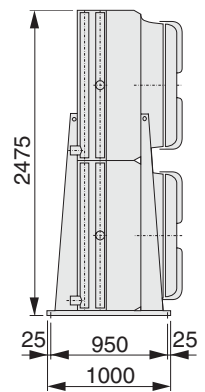
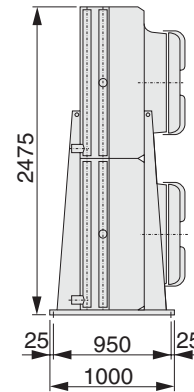
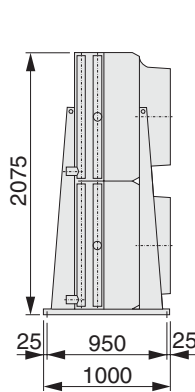
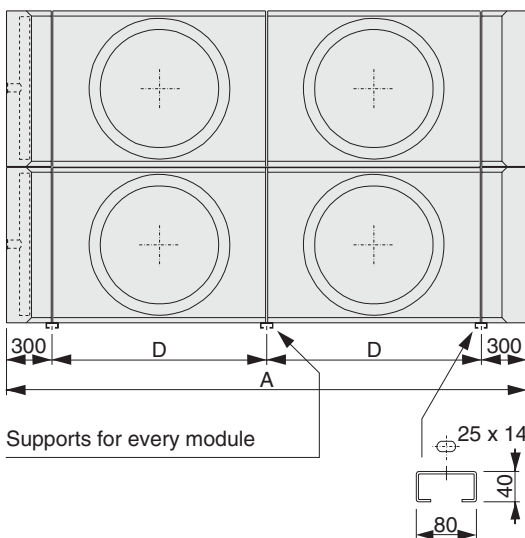


HTC-N 076 / 090 / 091 / 100 . 2••  
Horizontal Air Direction

HTC-N 076.2••

HTC-N 090. 2••

HTC-N 091/100. 2••



## Aircooled condensers NH<sub>3</sub>

## HTC-N

### Fan types

All fan types have corrosion resistant fan blades and fan guards.

#### HTC-N Type 076

Fans ø 762 mm mounted on a motor support.  
Fan guards are integrated in the fan plate.  
Standard execution with fan motors type 076.930.  
Motors are wired to one or more common terminal boxes.

The terminal boxes are located on the endplate at the liquid header end of the coil.

#### HTC-N Type 090 / 091

Fans ø 900 mm with 2-speed fan motors integrated with guards and mounted to fan discharge hood.

#### HTC-N Type 100

Similar in construction to type 090 / 091, fan diameter however 1000 mm.

All fan motors of HTC-N models **090**, **091** and **100** are equipped with an overload protector built in the windings. Via terminals in the terminal box this internal protector **must** be used in the control current circuit. The electrical control should be arranged in such a way that continuous on/off switching of the motors ('tripping') is prevented.  
When the condensers are out of use for longer periods, the motors have to be switched on for at least 2 hours every month.

#### All Models

For application at ambient temperatures above 40 °C : special motors on request.

### Fan motors

| Motor type | Number of poles | rpm | Capacity     |               | Motor voltage Volt | Thermal overload relay settings (A) *<br>220 / 380 |
|------------|-----------------|-----|--------------|---------------|--------------------|--|
|            |                 |     | nominal Watt | absorbed Watt |                    |  |

#### HTC-N type 076 (enclosed design, IP-55)

|           |     |    |      |     |      |                      |           |
|-----------|-----|----|------|-----|------|----------------------|-----------|
| 076 . 930 |     | 6  | 930  | 750 | 1170 | 230/400/50/3         | 5.0 / 2.9 |
| 076 . 690 |     | 8  | 690  | 370 | 560  | 230/400/50/3         | 2.6 / 1.5 |
| 076 . 325 |     | 16 | 325  | 120 | 290  | 230/400/50/3         | 2.0 / 1.2 |
| 076 . 425 | YI  | 6  | 935  | 750 | 1420 | 400/50/3             | 3.1       |
|           | YII | 12 | 425  | 150 | 300  | 400/50/3             | 1.1       |
| 076 . 930 | M   | 6  | 930  | 750 | 1170 | 230/50/1             | 8.0       |
| 076 . VAR |     | 6  | var. | 750 | 1000 | 230/50/1             | 8.4 **    |
| 076 . 840 |     | 8  | 840  | 660 | 770  | 230-254/400-440/60/3 | 4.8 / 2.8 |

#### HTC-N type 090 (enclosed design, IP-54)

|           |   |   |     |  |      |          |      |
|-----------|---|---|-----|--|------|----------|------|
| 090 . 850 | Δ | - | 850 |  | 3300 | 400/50/3 | 6.93 |
|           | Y | - | 610 |  | 1900 | 400/50/3 | 3.85 |
| 090 . 680 | Δ | - | 680 |  | 1750 | 400/50/3 | 3.96 |
|           | Y | - | 520 |  | 1200 | 400/50/3 | 2.53 |
| 090 . 860 | Δ | - | 830 |  | 1600 | 400/50/3 | 3.85 |
|           | Y | - | 610 |  | 910  | 400/50/3 | 1.98 |

#### HTC-N type 091 (enclosed design, IP-54)

|           |   |   |     |  |      |          |      |
|-----------|---|---|-----|--|------|----------|------|
| 091 . 850 | Δ | - | 850 |  | 3300 | 400/50/3 | 6.93 |
|           | Y | - | 610 |  | 1900 | 400/50/3 | 3.85 |
| 091 . 680 | Δ | - | 680 |  | 1750 | 400/50/3 | 3.96 |
|           | Y | - | 520 |  | 1200 | 400/50/3 | 2.53 |
| 091 . 860 | Δ | - | 830 |  | 1600 | 400/50/3 | 3.85 |
|           | Y | - | 610 |  | 910  | 400/50/3 | 1.98 |

#### HTC-N type 100 (enclosed design, IP-54)

|           |   |   |     |  |      |          |      |
|-----------|---|---|-----|--|------|----------|------|
| 100 . 670 | Δ | - | 650 |  | 2200 | 400/50/3 | 4.6  |
|           | Y | - | 460 |  | 1350 | 400/50/3 | 3.0  |
| 100 . 420 | Δ | - | 420 |  | 860  | 400/50/3 | 2.2  |
|           | Y | - | 310 |  | 500  | 400/50/3 | 1.07 |
| 100 . 380 | Δ | - | 380 |  | 670  | 400/50/3 | 1.54 |
|           | Y | - | 250 |  | 330  | 400/50/3 | 0.74 |

\* The settings can be applied to a minimum ambient temperature of -10 °C

\*\* Value at highest speed.

Note : Actual fan speed may differ from the values as indicated on the motor name plate.

## Aircooled condensers NH<sub>3</sub>

## HTC-N

### Capacity

The basic capacity ratings (pages 4, 5, 8 and 9) are for NH<sub>3</sub> at a td \* of 15 K and ambient temperatures up to 25 °C.

\* td = difference between condensing- and ambient temperature.

Capacities are directly proportional with other temperature differences between 10 and 20 K.

### Correction factors

|   |                 | Factor |
|---|-----------------|--------|
| Ambient temperature :                                     | 25 °C           | 1.00   |
|   | 35 °C           | 0.96   |
|   | 40 °C           | 0.94   |
|   | (special motor) | 50 °C  |
| Altitude above sea level :                                | 0 m             | 1.00   |
|   | 500 m           | 0.97   |
|   | 1000 m          | 0.93   |
|   | 1500 m          | 0.90   |
|   | 2000 m          | 0.86   |
|   | 2500 m          | 0.83   |
| Application of motors suitable for 60 Hz with n = 840 rpm |                 | 0.95   |

#### Example : HTC-N 076 . 124 - 60 Hz fans

What is the condenser capacity at an ambient temperature of 40 °C, refrigerant NH<sub>3</sub>, altitude at sea level and equipped with motors for 60 Hz ?

Nominal capacity at 15 K tv : 104.2 kW

Correction factors :

t = 40 °C : 0.94

altitude sea level : 1.00

60 Hz motors : 0.95

Corrected capacity :

0.94 x 1.00 x 0.95 x 104.2 = 93.0 kW

### Capacity control

For multifan models capacity can be controlled by cycling one or more fans. Capacity control on all models is also possible by using 2-speed or speed regulated single phase motors (in combination with an electronic speed control device).

The fan compartments are separated by baffle plates.

### Multi circuiting

Condensers can be supplied (at extra cost) with multi circuiting.

### Soundlevels dB(A)

The soundlevels in the tables on pages 4, 5, 8 and 9 are the results of tests in free field conditions. The values are measured in the horizontal plane at a distance of 10 m. More information on request.

The table below gives sound level corrections at various distances.

| Distance m | Correction dB(A) |
|------------|------------------|
| 1          | + 20             |
| 2          | + 14             |
| 3          | + 10             |
| 4          | + 8              |
| 5          | + 6              |
| 10         | 0                |
| 20         | - 6              |
| 50         | - 14             |
| 100        | - 20             |

## Aircooled condensers NH<sub>3</sub>

## HTC-N

### Extended feet

Extended feet can be supplied as optional extra for condenser models 076, 090, 091 and 100. These feet are supplied separately. The standard feet height gives 400 mm free space under the condenser. Extended feet are available for heights of 600 mm.

### Transport

All models are provided with lifting lugs. To avoid damage during hoisting, a hoisting beam should be used, by which the given angles are to be considered. Beware of shocks during transport and handling (sudden lifting).

### Mounting

Refrigerant pipework connections are to be soldered free of tension. When connecting more than one condenser in parallel the pressure drop on the refrigerant side has to be considered.

### Location

#### Air movement

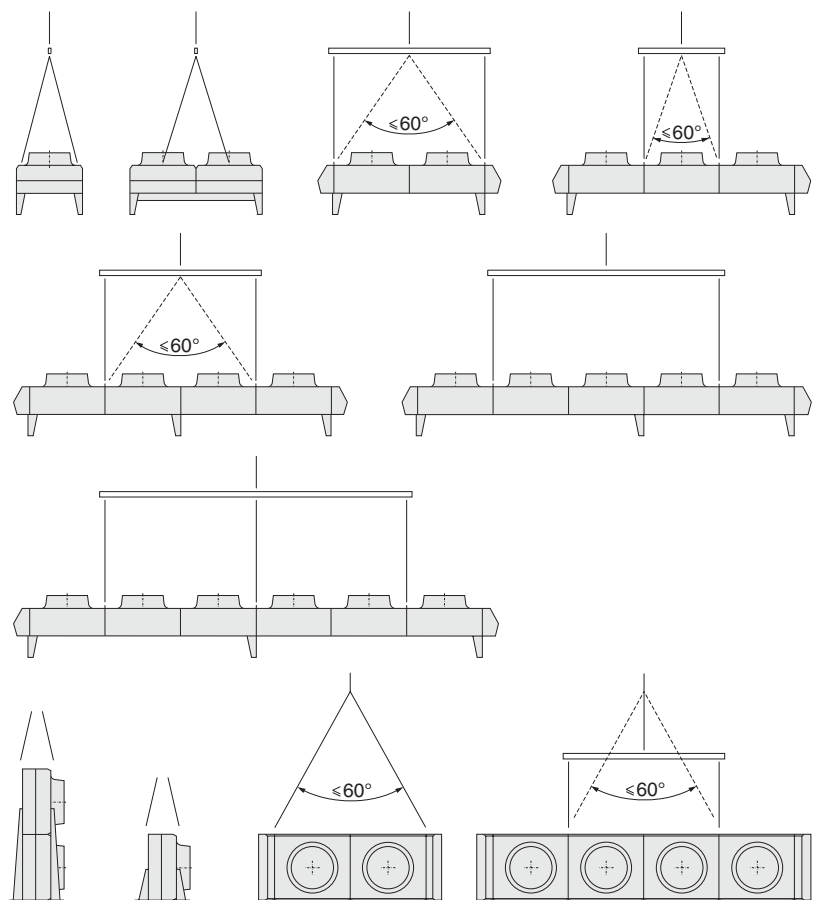
Condensers should be positioned to achieve the following criteria :

- Adequate space (min. 1.0 meter) must be left for free entry to the coil inlet face.
- No restrictions to the air discharge.
- No possibility of direct air recirculation (short circuiting of air).

### Installation and maintenance

For more information on installation and maintenance of air cooled condensers model HTC-N we refer to our brochure nr. 88.02 ( "Installation and Maintenance Instructions for Aircooled Condensers" ).

This brochure is issued with every condenser.





## Alfa Laval in brief

Alfa Laval is a leading global provider of specialized products and engineered solutions.

Our equipment, systems and services are dedicated to helping customers to optimize the performance of their processes. Time and time again.

We help our customers to heat, cool, separate and transport products such as oil, water, chemicals, beverages, foodstuffs, starch and pharmaceuticals.

Our worldwide organization works closely with customers in almost 100 countries to help them stay ahead.

## How to contact Alfa Laval

Up-to-date Alfa Laval contact details for all countries are always available on our website at [www.alfalaval.com](http://www.alfalaval.com)

## Helpman products

Helpman, a well respected air heat exchanger manufacturer, was acquired by Alfa Laval in 2007. The Helpman brand will remain as a strong product name.

Information about Alfa Laval Helpman products is available on the website [www.helpman.com](http://www.helpman.com).

