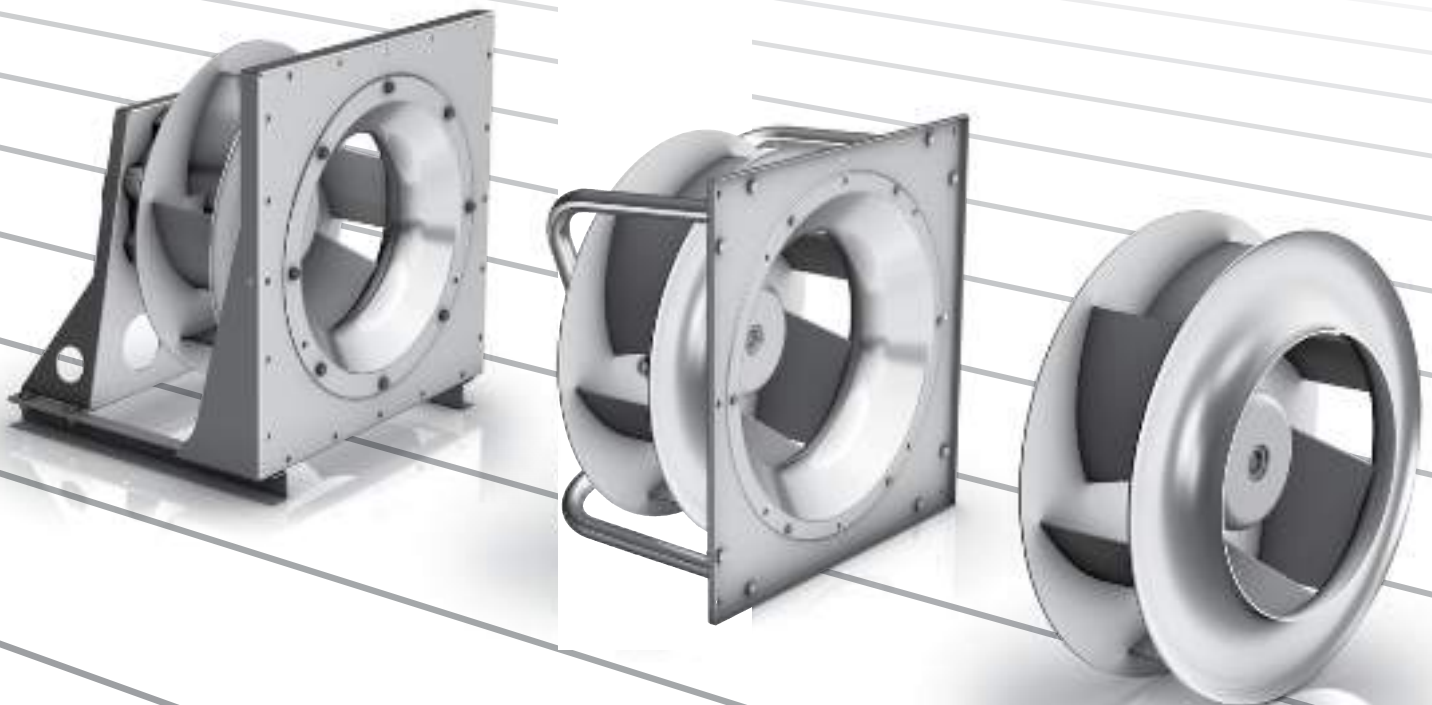


# High Performance Plug Fans

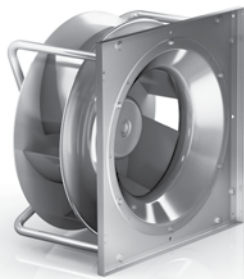
Impeller with true airfoil blades

Issue 1.4 EN  
January 2013

## RLE<sup>EVO</sup>



**NICOTRA** | **Gebhardt**  
fan|tastic solutions



## Ready for the next generation

We have accelerated impeller technology with the RLE Evo series, the new generation in our plug fan range. The result: More efficiency and reduced turbulent conditions. And that is highly effective as the Evo series ensures:

- ▶ lower energy consumption
- ▶ lower costs
- ▶ lower noise levels

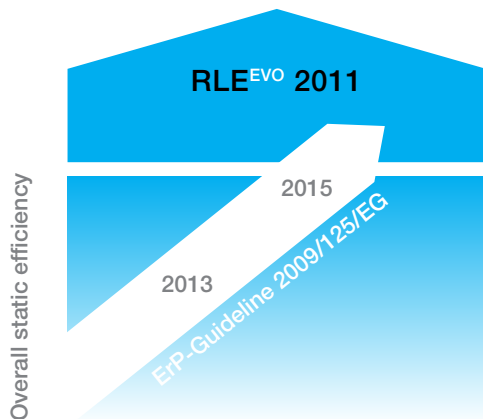
### Nicotra Gebhardt – the professionals in profiling

Nicotra Gebhardt is the first port of call for profiled impeller blades. We brought the first hollow section airfoil blades onto the market in 1975. Since then we have been achieving the absolutely best efficiencies in our fans in every application. Our engineers and technicians use the latest simulation programmes to develop and test new designs. You can rely on the knowledge and experience of specialists.

### Don't wait until 2015

Fans must reach ever higher system efficiencies. The EU's ErP directive will prescribe compulsory values in 2013 and will increase them again in 2015.

The new generation of plug fans by Nicotra Gebhardt, already achieved higher efficiency in 2011 than that required as from 2015.



## The plus factors of the new Generation

### ▶ Unparalleled system efficiency for plug fans

The Evo series sets a new standard in efficiency. No other plug fan reaches higher system efficiency.

### ▶ Innovative blade and impeller shaped for highest efficiencies

The entire shape of the impeller was optimised using a real turbulence profile for the blades. This ensures that the impeller reaches as yet unparalleled high efficiency and takes the top position in aerodynamics.

### ▶ Optimal pressure and turbulence conditions

The re-designed impeller shape makes optimal pressure and minimised turbulence conditions in the impeller possible. The inclined leading edge of the blade builds pressure more evenly minimising entry and exit losses.

### ▶ Low operating cost brushless DC motor

The brushless DC motor used by Nicotra Gebhardt is markedly more efficient than conventional drives: It reduces the energy consumption of the fan for partial loads by up to 50 %.

### ▶ Much quieter

Thanks to their new design the blades and the impeller run with less noise. The entire fan is thus much quieter.

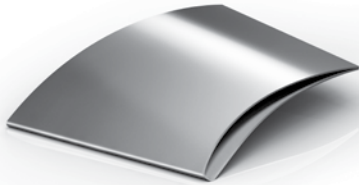
### ▶ Easy to integrate

Despite their improved performance figures, the Evo series have the same external dimensions and significant operational data as earlier generations of plug fans. They can therefore be easily and quickly exchanged in existing systems or integrated in available machine concepts.

### ▶ Easy maintenance

Thanks to the construction method and direct drive the Evo series is practically maintenance-free.

## The evolutionary elements



### ► The perfect profile

At the heart of the Evo series are the six blades with rounded inclined leading edges and re-designed hollow profile.

They ensure minimised turbulence conditions in the impeller thus enabling the extraordinary high efficiency of the fan.

Due to their special shape, the blades build up pressure evenly at all sections. The result: Air circulates around the blades better and the turbulence tends to dissipate. This increases not only efficiency but also causes significantly lower noise.



### ► The innovative high performance impeller

The re-designed high performance impeller makes the Evo series unbeatable in matters of efficiency. To ensure this we optimised the entire shape.

The special shape of the cover disc alone greatly improves turbulence. The width and diameter of the impeller are in an ideal ratio to each other.

The new hollow profile of the blades ensured that the weight of the impeller could be markedly reduced and that, at the same time, a high degree of stability could be reached. Pressure losses on entry were greatly decreased.

And at the exit, where losses had been sustained before, the new impeller shape ensures additional available static pressure.



### ► The tailored drive

The new generation of our plug fans not only have a perfect impeller but also a precisely matched drive. For this reason, the Evo series, already an innovation in itself, is available with a cutting edge brushless DC motors. Together with such a drive, the Evo series delivers high performance with particularly low energy consumption. Whether during start-up or under base, partial or full load, the efficiency exceeds that of a conventional AC motor in every situation.

Our drives with brushless DCs reach efficiencies of efficiency class IE 3 and higher.

## Type code

The type code of every fan is composed as follows. Example:

### RLE E6-3540-EC-04

#### Motor index:

- 04 = Index for motor size
- M4 = Control via Modbus® RTU protocol

#### Motor

- EC = brushless DC motor with integrated control unit

#### Impeller diameter (nominal 400 mm)

#### Connecting diameter (nominal 355 mm)

#### Specification

- 0 = motor impeller unit
- 1 = motor impeller unit with inlet cone
- 3 = complete Plug Fan module (motor impeller unit, supporting plate with inlet cone)
- 6 = complete Plug Fan module (motor impeller unit, supporting plate with inlet cone and motor stand on baseframe)

#### Impeller geometry

- E = series Evo

#### Drive type

- E = integrated motor

#### Scroll type

- L = plug fan (without scroll)

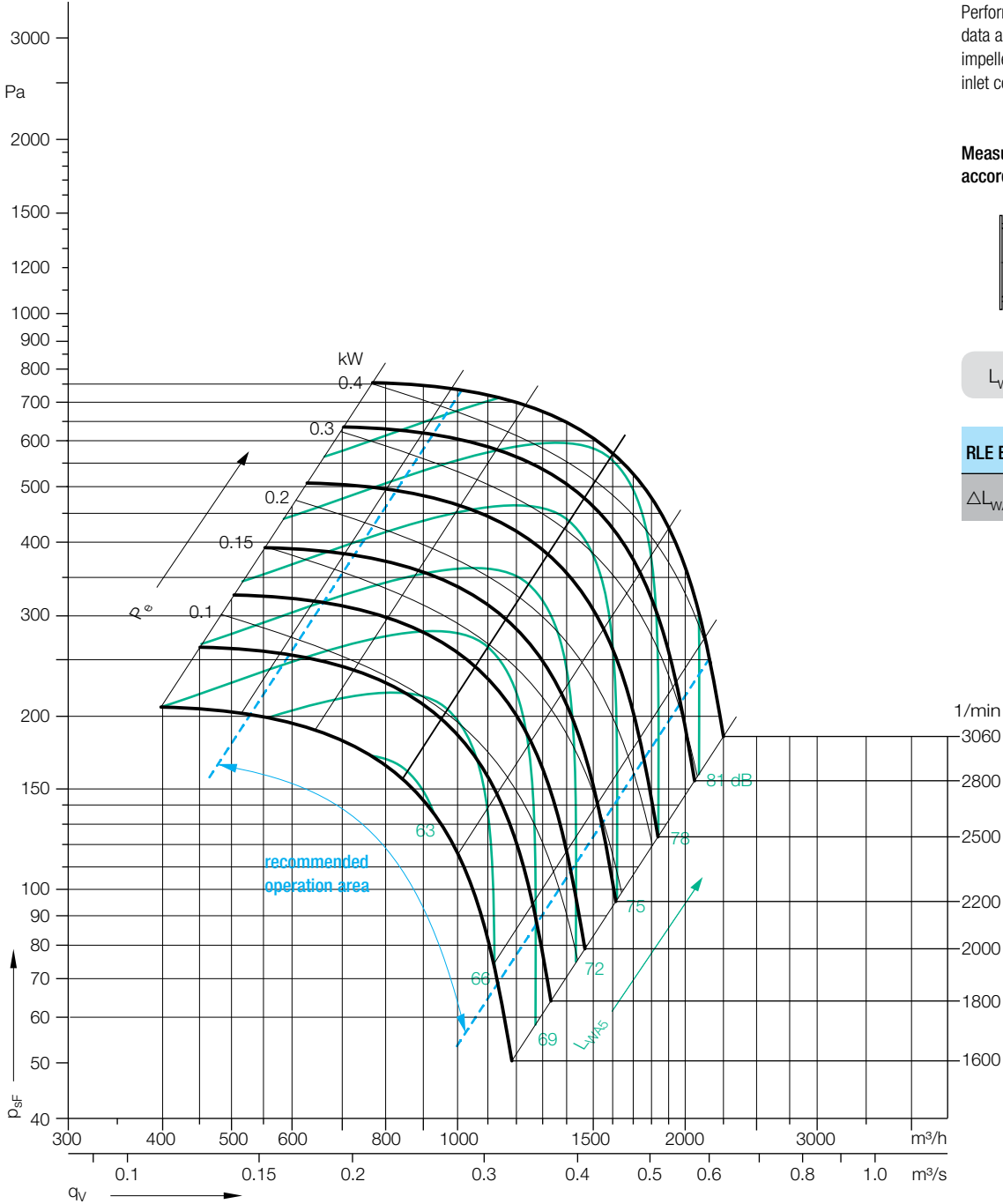
#### Fan type

- R = centrifugal fan with backwardcurved blades

RLE G1-/G3-/G6-  
2225-EC-02/M2

THE EVOLUTION  
CONTINUES.  
RLE<sup>EVO</sup>

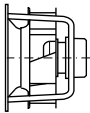
Performance charts



$\rho_1 = 1.20 \text{ kg/m}^3$

Performance curves and sound data are valid only for the motor impeller in connection with our inlet cone!

Measured in installation A according to ISO 5801:



|                                     |       |
|-------------------------------------|-------|
| $L_{WA6} = L_{WA5} + \Delta L_{WA}$ |       |
| RLE E_-                             | 2225  |
| $\Delta L_{WA}$                     | +2 dB |

Sounds

The value for the discharge side  $L_{WA6}$  can be calculated with the following formula.

Inlet side

$L_{Wfc5} = L_{WA5} + L_{Wrel5}$

Relative sound power level for inlet side  $L_{Wrel5}$  at octave centre frequencies  $f_c$  for the rated area (0.8 ... 1.3  $q_{Vopt}$ ).

| RLE E_- | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 Hz |
|---------|----|-----|-----|-----|------|------|------|---------|
| 2225    | -9 | -2  | 2   | -2  | -5   | -13  | -17  | -27 dB  |

Discharge

$L_{Wfc6} = L_{WA6} + L_{Wrel6}$

Relative sound power level for discharge side  $L_{Wrel6}$  at octave centre frequencies  $f_c$  for the rated area (0.8 ... 1.3  $q_{Vopt}$ ).

| RLE E_- | 63  | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 Hz |
|---------|-----|-----|-----|-----|------|------|------|---------|
| 2225    | -10 | -9  | -3  | -6  | -5   | -6   | -12  | -19 dB  |

# RLE G1-/G3-/G6- 2225-EC-02/M2

THE EVOLUTION  
CONTINUES.  
**RLE<sup>EVO</sup>**

## Technical Data

| Fan type             | Max. power consumption | Voltage/ connection | Frequency | max. speed | $L_{WA5}$ at $Q_{Vopt}$ ( $N_{max}$ ) | Nominal current | Protection/ temp. class | Calibration factor | media temp. |
|----------------------|------------------------|---------------------|-----------|------------|---------------------------------------|-----------------|-------------------------|--------------------|-------------|
| RLE G1-/G3-/G6-      | kW                     | V                   | Hz        | 1/min      | dB                                    | A               |                         | m <sup>2</sup> s/h | °C          |
| RLE ...2225-EC-02/M2 | 0.45                   | 200...277, 1~       | 50/60     | 3060       | 78                                    | 2.8*            | IP54/F                  | 74                 | -20...+40   |

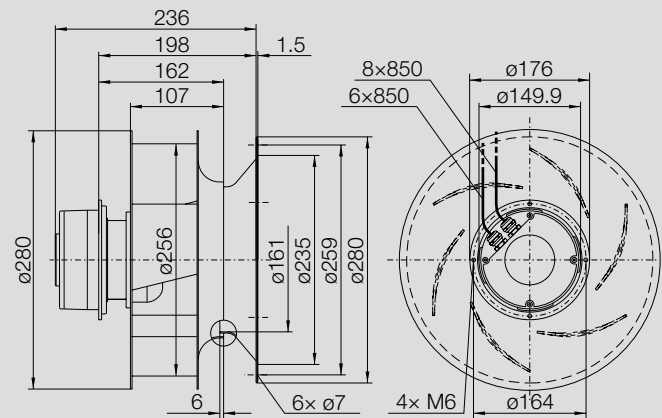
$L_{WA6}$  = A-weighted sound power level at discharge

\* at a voltage of 400 V

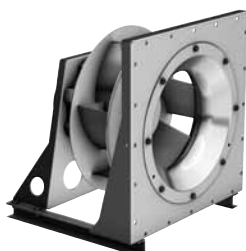
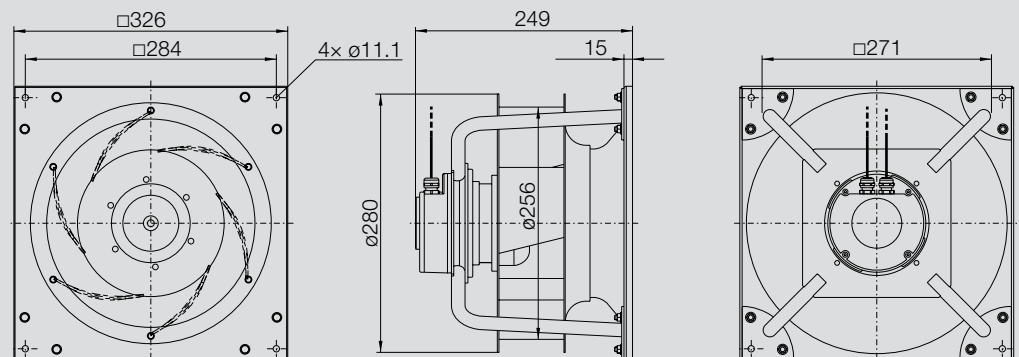
## Dimensions in mm, subject to change.



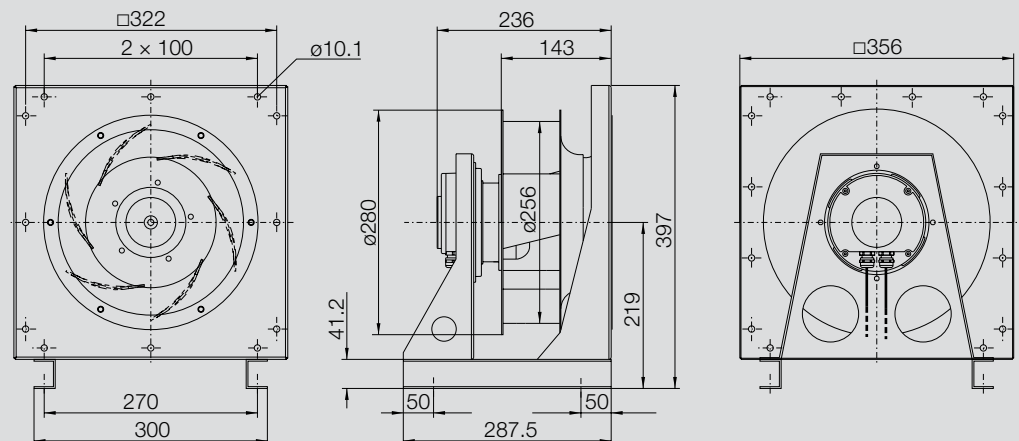
RLE G1-2225-EC-02/M2 7 kg



RLE G3-2225-EC-02/M2 10 kg

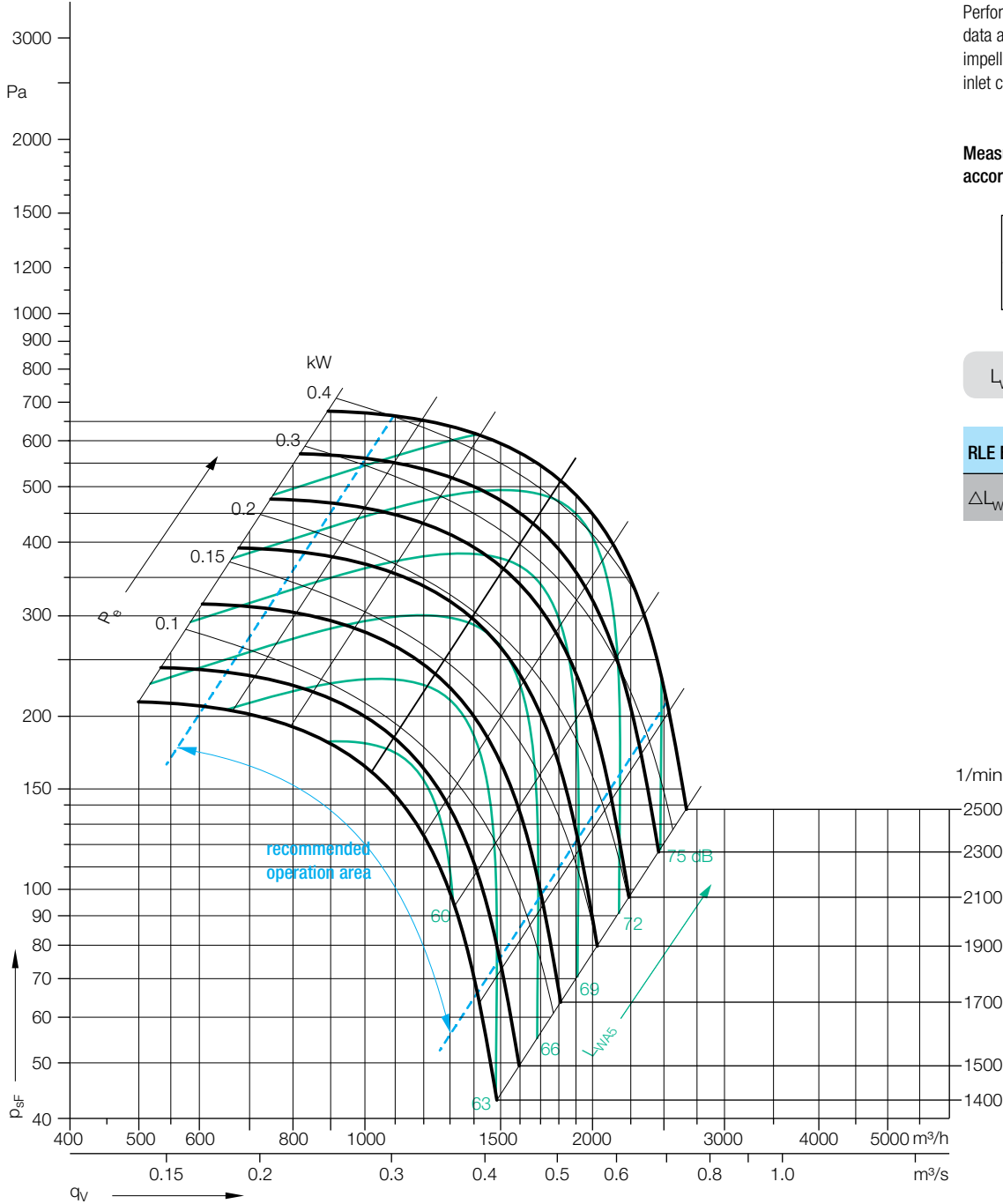


RLE G6-2225-EC-02/M2 12 kg



RLE E1-/E3-/E6-  
2528-EC-02/M2

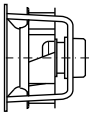
Performance charts



$\rho_1 = 1.20 \text{ kg/m}^3$

Performance curves and sound data are valid only for the motor impeller in connection with our inlet cone!

Measured in installation A according to ISO 5801:



|                                     |       |
|-------------------------------------|-------|
| $L_{WA6} = L_{WA5} + \Delta L_{WA}$ |       |
| RLE E_-                             | 2528  |
| $\Delta L_{WA}$                     | +4 dB |

Sounds

The value for the discharge side  $L_{WA6}$  can be calculated with the following formula.

Inlet side

$L_{Wfc5} = L_{WA5} + L_{Wrel5}$

Relative sound power level for inlet side  $L_{Wrel5}$  at octave centre frequencies  $f_c$  for the rated area (0.8 ... 1.3  $q_{Vopt}$ ).

| RLE E_- | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 Hz |
|---------|----|-----|-----|-----|------|------|------|---------|
| 2528    | -9 | -8  | -1  | -3  | -5   | -10  | -11  | -16 dB  |

Discharge

$L_{Wfc6} = L_{WA6} + L_{Wrel6}$

Relative sound power level for discharge side  $L_{Wrel6}$  at octave centre frequencies  $f_c$  for the rated area (0.8 ... 1.3  $q_{Vopt}$ ).

| RLE E_- | 63  | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 Hz |
|---------|-----|-----|-----|-----|------|------|------|---------|
| 2528    | -10 | -13 | -9  | -9  | -6   | -6   | -7   | -13 dB  |

# RLE E1-/E3-/E6-2528-EC-02/M2

THE EVOLUTION  
CONTINUES.  
**RLE<sup>EVO</sup>**

## Technical Data

| Fan type              | Max. power consumption | Voltage/ connection | Frequency | max. speed | $L_{WA5}$ at $Q_{Vopt}$ ( $N_{max}$ ) | Nominal current | Protection/ temp. class | Calibration factor | media temp. |
|-----------------------|------------------------|---------------------|-----------|------------|---------------------------------------|-----------------|-------------------------|--------------------|-------------|
| RLE E1-/E3-/E6-       | kW                     | V                   | Hz        | 1/min      | dB                                    | A               |                         | m²s/h              | °C          |
| RLE ...-2528-EC-02/M2 | 0.42                   | 200...277, 1~       | 50/60     | 2500       | 73                                    | 2.6*            | IP54/F                  | 79                 | -20...+40   |

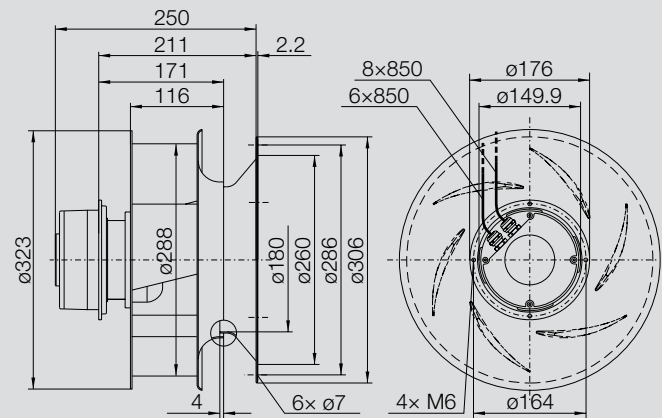
$L_{WA6}$  = A-weighted sound power level at discharge

\* at a voltage of 230 V

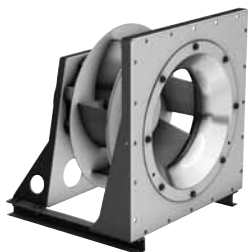
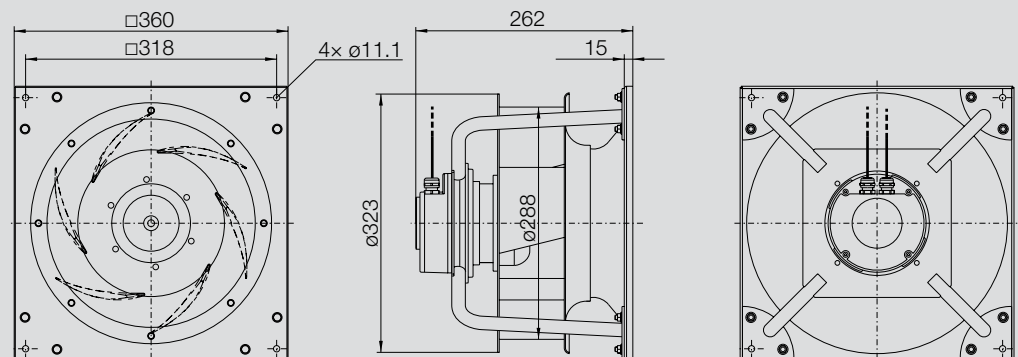
## Dimensions in mm, subject to change.



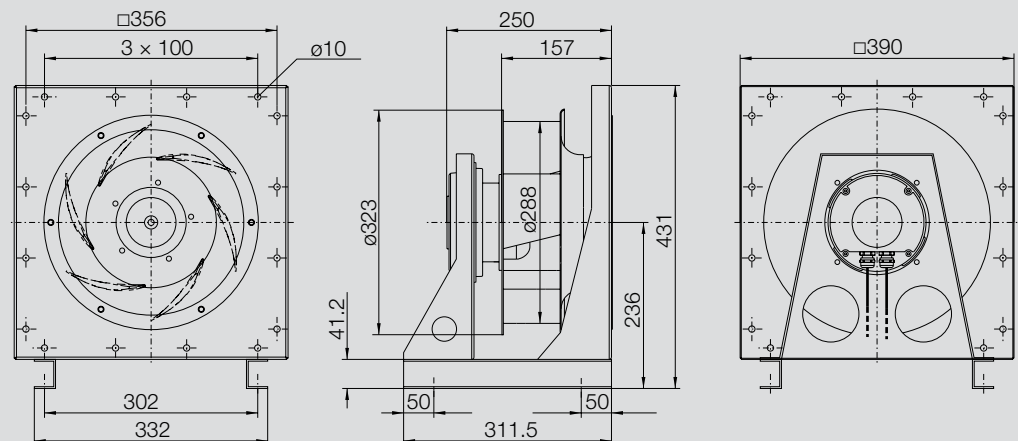
RLE E1-2528-EC-02/M2 7.1 kg



RLE E3-2528-EC-02/M2 11 kg



RLE E6-2528-EC-02/M2 13 kg

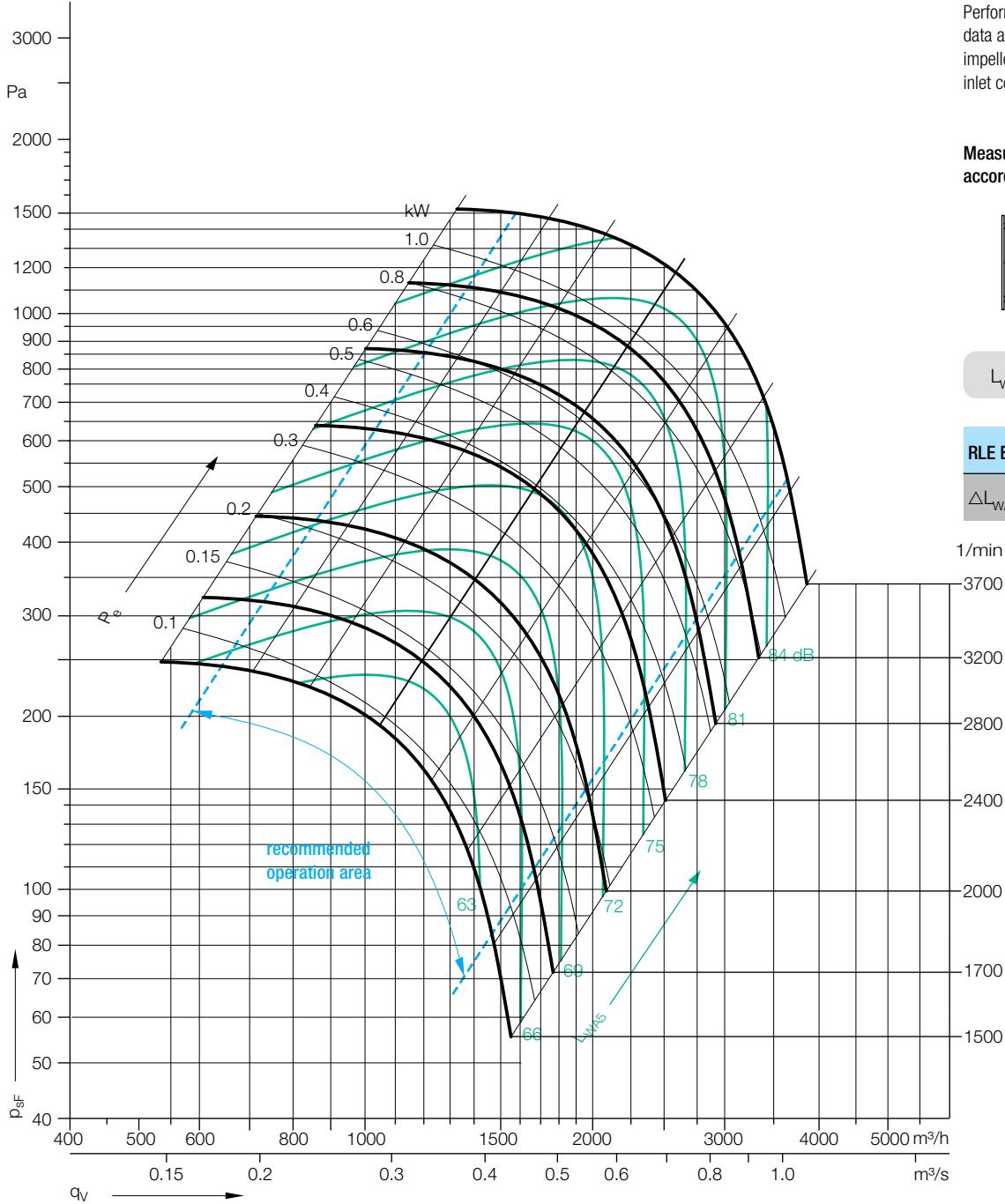




# RLE E1-/E3-/E6- 2528-EC-04/M4

THE EVOLUTION  
CONTINUES.  
**RLE<sup>EVO</sup>**

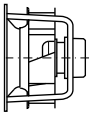
Performance charts



$\rho_1=1.20 \text{ kg/m}^3$

Performance curves and sound data are valid only for the motor impeller in connection with our inlet cone!

Measured in installation A according to ISO 5801:



|                                     |       |
|-------------------------------------|-------|
| $L_{WA6} = L_{WA5} + \Delta L_{WA}$ |       |
| RLE E_-                             | 2528  |
| $\Delta L_{WA}$                     | +4 dB |

Sounds

The value for the discharge side  $L_{WA6}$  can be calculated with the following formula.

Inlet side

$L_{Wfc5} = L_{WA5} + L_{Wrel5}$

Relative sound power level for inlet side  $L_{Wrel5}$  at octave centre frequencies  $f_c$  for the rated area (0.8 ... 1.3  $q_{Vopt}$ ).

| RLE E_- | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 Hz |
|---------|----|-----|-----|-----|------|------|------|---------|
| 2528    | -9 | -8  | -1  | -3  | -5   | -10  | -11  | -16 dB  |

Discharge

$L_{Wfc6} = L_{WA6} + L_{Wrel6}$

Relative sound power level for discharge side  $L_{Wrel6}$  at octave centre frequencies  $f_c$  for the rated area (0.8 ... 1.3  $q_{Vopt}$ ).

| RLE E_- | 63  | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 Hz |
|---------|-----|-----|-----|-----|------|------|------|---------|
| 2528    | -10 | -13 | -9  | -9  | -6   | -6   | -7   | -13 dB  |



# RLE E1-/E3-/E6-2528-EC-04/M4

THE EVOLUTION  
CONTINUES.  
**RLE<sup>EVO</sup>**

## Technical Data

| Fan type              | Max. power consumption | Voltage/ connection | Frequency | max. speed | $L_{WA5}$ at $Q_{Vopt}$ ( $N_{max}$ ) | Nominal current | Protection/ temp. class | Calibration factor | media temp. |
|-----------------------|------------------------|---------------------|-----------|------------|---------------------------------------|-----------------|-------------------------|--------------------|-------------|
| RLE E1-/E3-/E6-       | kW                     | V                   | Hz        | 1/min      | dB                                    | A               |                         | m²s/h              | °C          |
| RLE ...-2528-EC-04/M4 | 1.30                   | 380...480, 3~       | 50/60     | 3700       | 82                                    | 2.3*            | IP54/F                  | 77                 | -20...+40   |

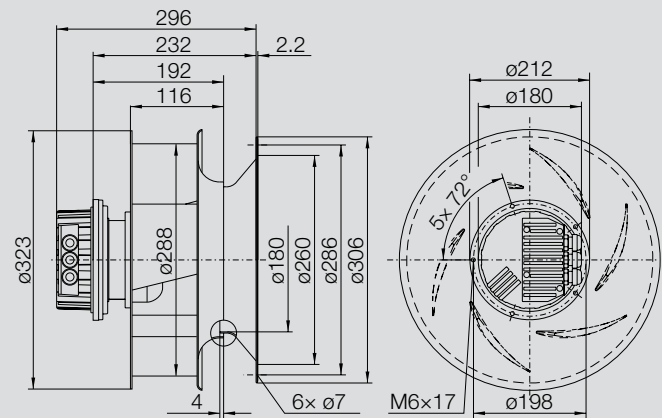
$L_{WA6}$  = A-weighted sound power level at discharge

\* at a voltage of 400 V

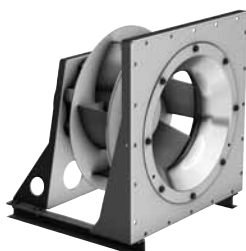
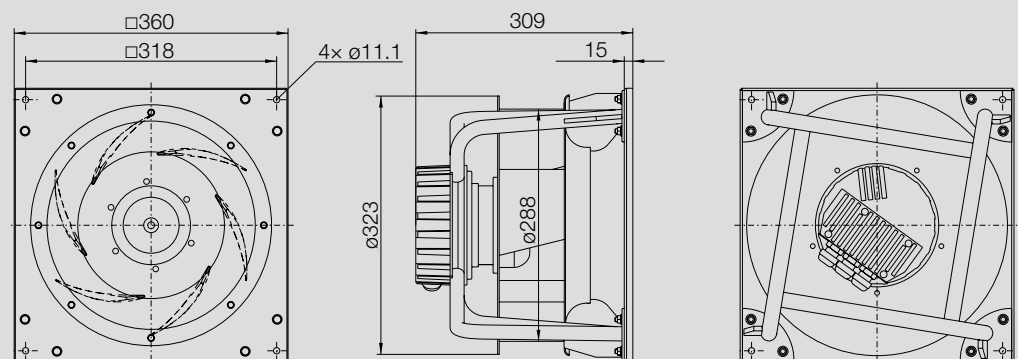
## Dimensions in mm, subject to change.



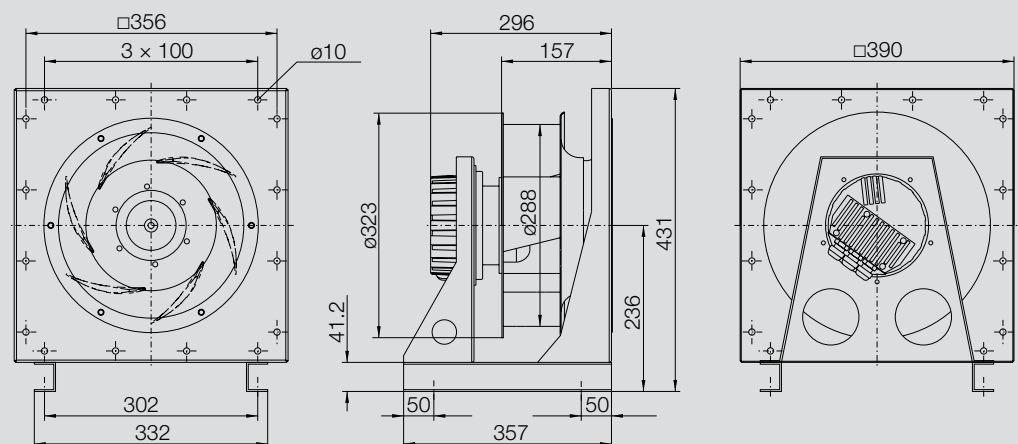
RLE E1-2528-EC-04/M4 10 kg



RLE E3-2528-EC-04/M4 18 kg



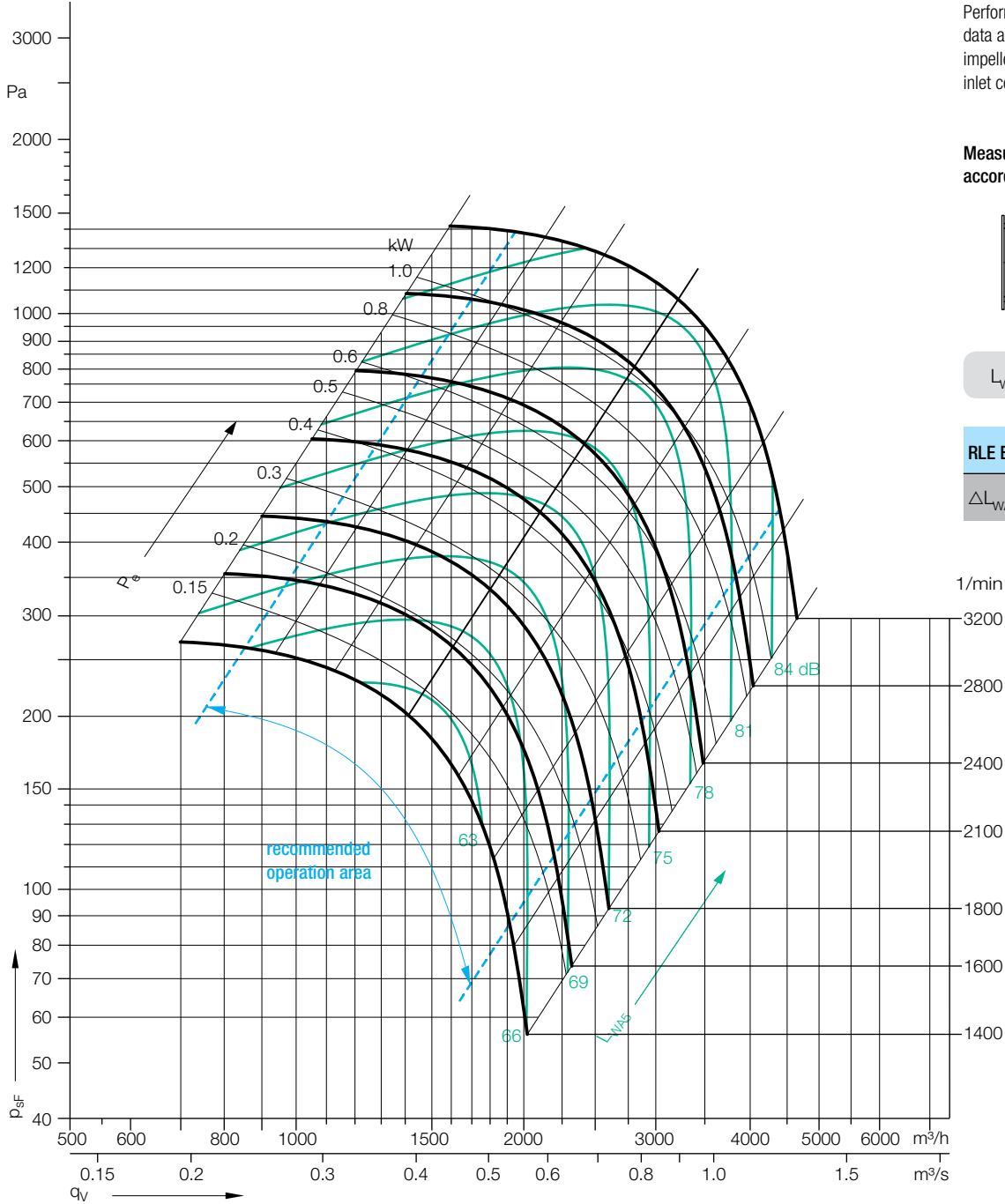
RLE E6-2528-EC-04/M4 16 kg



# RLE E1-/E3-/E6-2831-EC-04/M4

THE EVOLUTION  
CONTINUES.  
RLE<sup>EVO</sup>

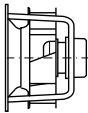
Performance charts



$\rho_f=1.20 \text{ kg/m}^3$

Performance curves and sound data are valid only for the motor impeller in connection with our inlet cone!

Measured in installation A according to ISO 5801:



$$L_{WA6} = L_{WA5} + \Delta L_{WA}$$

|                 |       |
|-----------------|-------|
| RLE E_-         | 2831  |
| $\Delta L_{WA}$ | +9 dB |

Sounds

The value for the discharge side  $L_{WA6}$  can be calculated with the following formula.

Inlet side

$$L_{Wfc5} = L_{WA5} + L_{Wrel5}$$

Relative sound power level for inlet side  $L_{Wrel5}$  at octave centre frequencies  $f_c$  for the rated area (0.8 ... 1.3  $q_{Vopt}$ ).

| RLE E_- | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 Hz |
|---------|----|-----|-----|-----|------|------|------|---------|
| 2831    | -6 | -5  | -1  | -3  | -6   | -8   | -12  | -21 dB  |

Discharge

$$L_{Wfc6} = L_{WA6} + L_{Wrel6}$$

Relative sound power level for discharge side  $L_{Wrel6}$  at octave centre frequencies  $f_c$  for the rated area (0.8 ... 1.3  $q_{Vopt}$ ).

| RLE E_- | 63  | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 Hz |
|---------|-----|-----|-----|-----|------|------|------|---------|
| 2831    | -13 | -16 | -12 | -11 | -6   | -4   | -11  | -22 dB  |

# RLE E1-/E3-/E6-2831-EC-04/M4

THE EVOLUTION  
CONTINUES.  
**RLE<sup>EVO</sup>**

## Technical Data

| Fan type              | Max. power consumption | Voltage/ connection | Frequency | max. speed | $L_{WA5}$ at $Q_{Vopt}$ ( $N_{max}$ ) | Nominal current | Protection/ temp. class | Calibration factor | media temp. |
|-----------------------|------------------------|---------------------|-----------|------------|---------------------------------------|-----------------|-------------------------|--------------------|-------------|
| RLE E1-/E3-/E6-       | kW                     | V                   | Hz        | 1/min      | dB                                    | A               |                         | m²s/h              | °C          |
| RLE ...-2831-EC-04/M4 | 1.50                   | 380...480, 3~       | 50/60     | 3200       | 82                                    | 2.5*            | IP54/F                  | 94                 | -20...+40   |

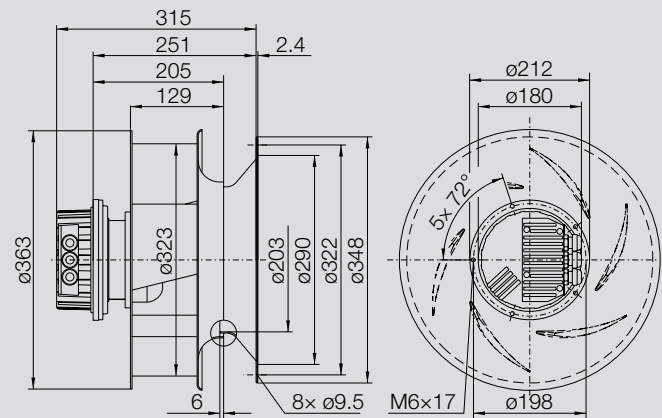
$L_{WA6}$  = A-weighted sound power level at discharge

\* at a voltage of 400 V

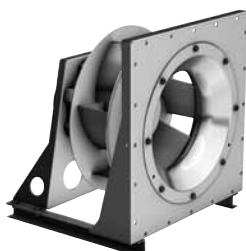
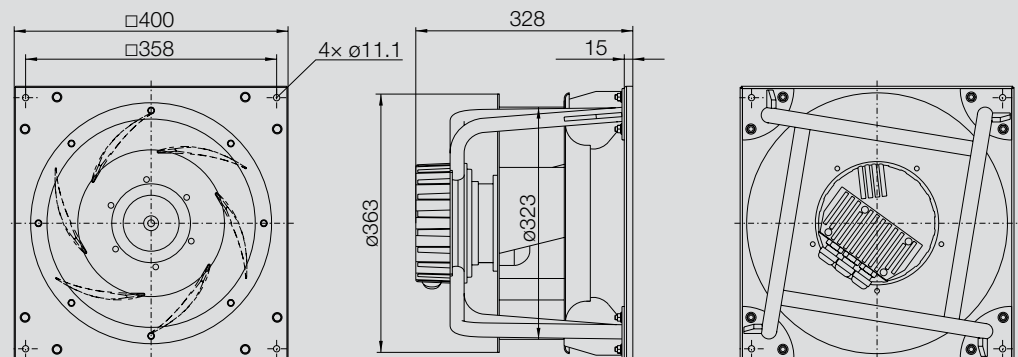
## Dimensions in mm, subject to change.



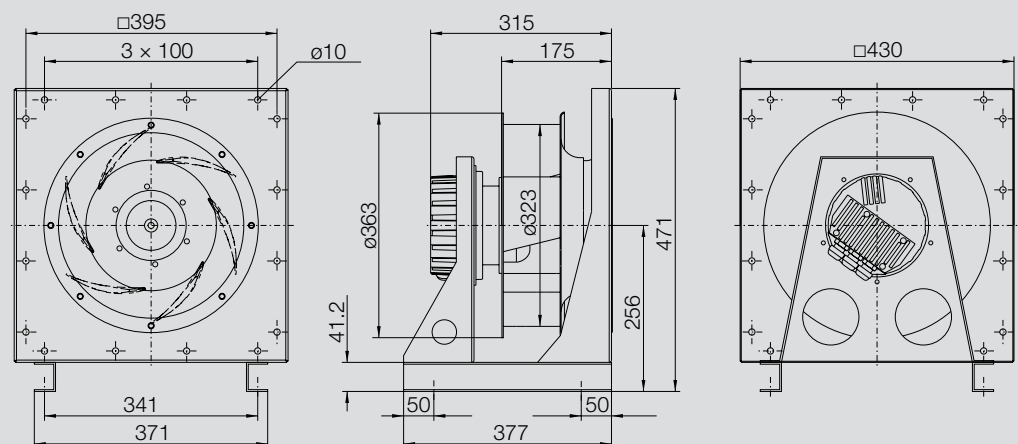
RLE E1-2831-EC-04/M4 11 kg



RLE E3-2831-EC-04/M4 19 kg



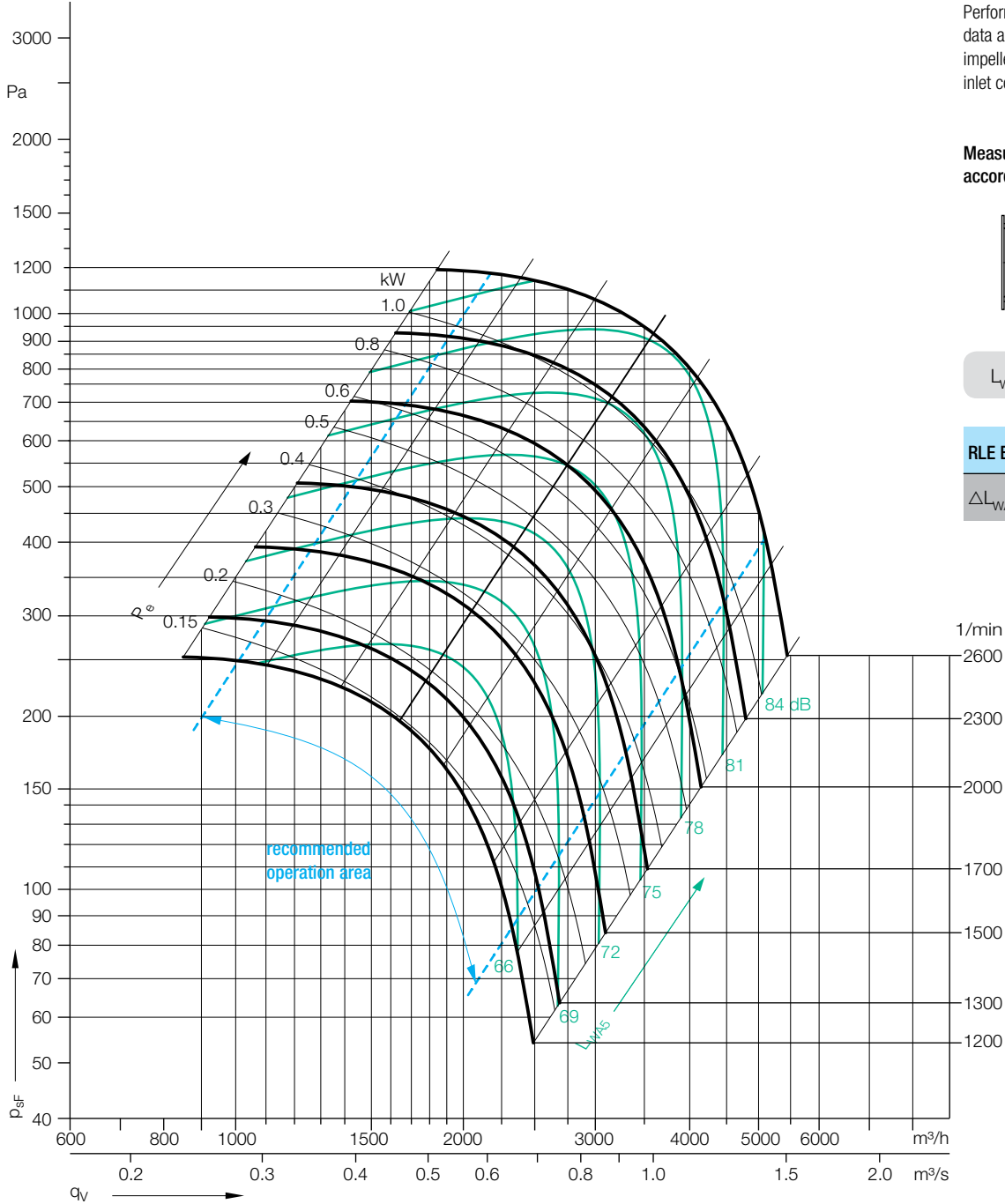
RLE E6-2831-EC-04/M4 18 kg



# RLE E1-/E3-/E6-3135-EC-04/M4

THE EVOLUTION  
CONTINUES.  
RLE<sup>EVO</sup>

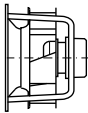
Performance charts



$\rho_1=1.20 \text{ kg/m}^3$

Performance curves and sound data are valid only for the motor impeller in connection with our inlet cone!

Measured in installation A according to ISO 5801:



$L_{WA6} = L_{WA5} + \Delta L_{WA}$

|                 |       |
|-----------------|-------|
| RLE E_-         | 3135  |
| $\Delta L_{WA}$ | +4 dB |

Sounds

The value for the discharge side  $L_{WA6}$  can be calculated with the following formula.

Inlet side

$L_{Wfc5} = L_{WA5} + L_{Wrel5}$

Relative sound power level for inlet side  $L_{Wrel5}$  at octave centre frequencies  $f_c$  for the rated area (0.8 ... 1.3  $q_{Vopt}$ ).

| RLE E_- | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 Hz |
|---------|----|-----|-----|-----|------|------|------|---------|
| 3135    | -3 | 1   | 1   | -1  | -6   | -10  | -13  | -20 dB  |

Discharge

$L_{Wfc6} = L_{WA6} + L_{Wrel6}$

Relative sound power level for discharge side  $L_{Wrel6}$  at octave centre frequencies  $f_c$  for the rated area (0.8 ... 1.3  $q_{Vopt}$ ).

| RLE E_- | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 Hz |
|---------|----|-----|-----|-----|------|------|------|---------|
| 3135    | -6 | -6  | -5  | -7  | -4   | -5   | -11  | -18 dB  |

# RLE E1-/E3-/E6-3135-EC-04/M4

THE EVOLUTION  
CONTINUES.  
**RLE<sup>EVO</sup>**

## Technical Data

| Fan type              | Max. power consumption | Voltage/ connection | Frequency | max. speed | $L_{WA5}$ at $Q_{Vopt}$ ( $N_{max}$ ) | Nominal current | Protection/ temp. class | Calibration factor | media temp. |
|-----------------------|------------------------|---------------------|-----------|------------|---------------------------------------|-----------------|-------------------------|--------------------|-------------|
| RLE E1-/E3-/E6-       | kW                     | V                   | Hz        | 1/min      | dB                                    | A               |                         | m²s/h              | °C          |
| RLE ...-3135-EC-04/M4 | 1.40                   | 380...480, 3~       | 50/60     | 2600       | 81                                    | 2.4*            | IP54/F                  | 106                | -20...+40   |

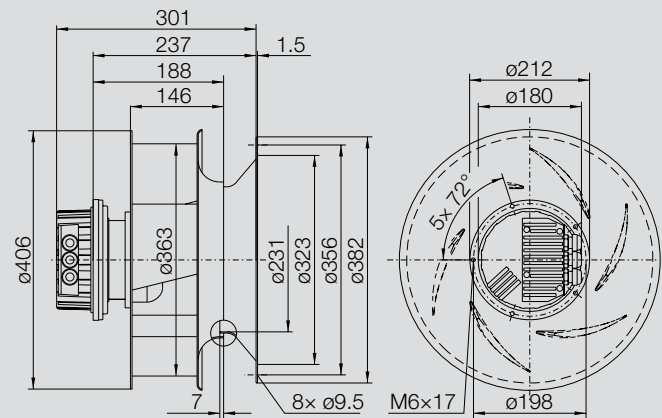
$L_{WA6}$  = A-weighted sound power level at discharge

\* at a voltage of 400 V

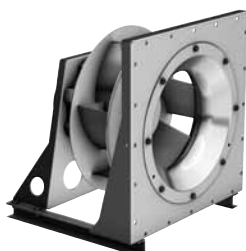
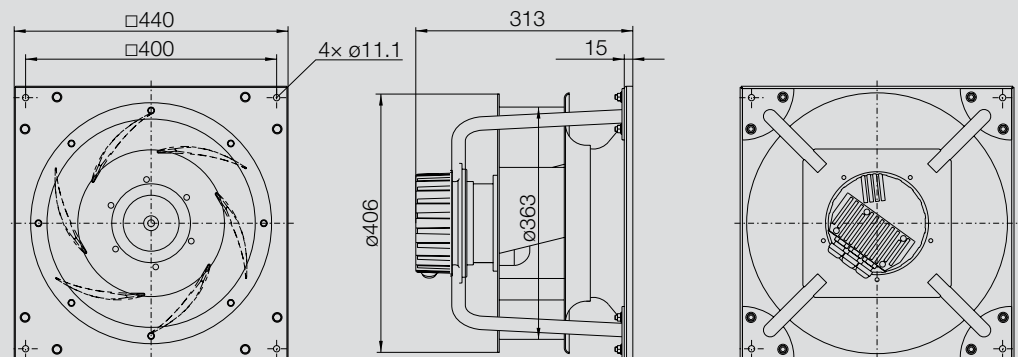
## Dimensions in mm, subject to change.



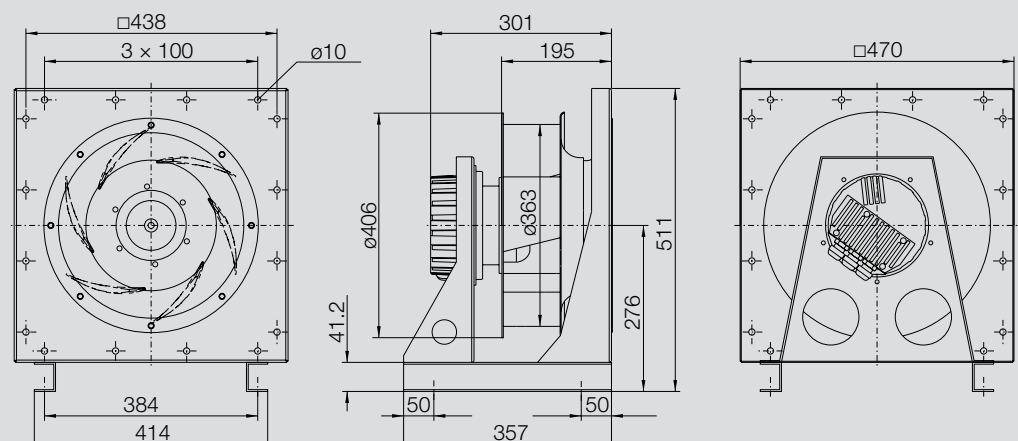
RLE E1-3135-EC-04/M4 12 kg



RLE E3-3135-EC-04/M4 20 kg



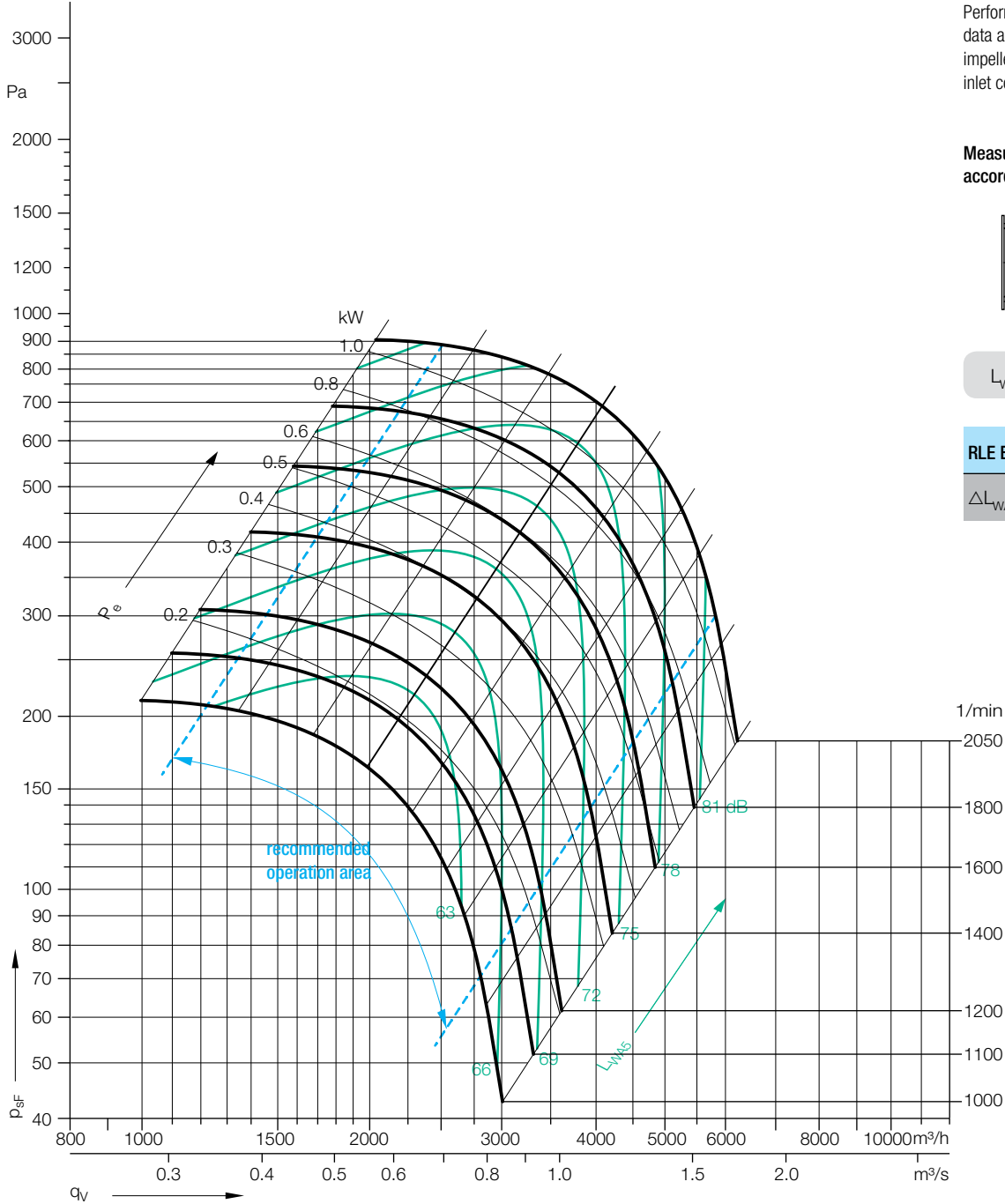
RLE E6-3135-EC-04/M4 20 kg



# RLE E1-/E3-/E6-3540-EC-04/M4

THE EVOLUTION  
CONTINUES.  
**RLE<sup>EVO</sup>**

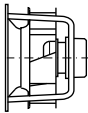
Performance charts



$\rho_1=1.20 \text{ kg/m}^3$

Performance curves and sound data are valid only for the motor impeller in connection with our inlet cone!

Measured in installation A according to ISO 5801:



|                                     |       |
|-------------------------------------|-------|
| $L_{WA6} = L_{WA5} + \Delta L_{WA}$ |       |
| RLE E_-                             | 3540  |
| $\Delta L_{WA}$                     | +6 dB |

Sounds

The value for the discharge side  $L_{WA6}$  can be calculated with the following formula.

Inlet side

$L_{Wfc5} = L_{WA5} + L_{Wrel5}$

Relative sound power level for inlet side  $L_{Wrel5}$  at octave centre frequencies  $f_c$  for the rated area (0.8 ... 1.3  $q_{Vopt}$ ).

| RLE E_- | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 Hz |
|---------|----|-----|-----|-----|------|------|------|---------|
| 3540    | -5 | -2  | 0   | -2  | -5   | -9   | -14  | -18 dB  |

Discharge

$L_{Wfc6} = L_{WA6} + L_{Wrel6}$

Relative sound power level for discharge side  $L_{Wrel6}$  at octave centre frequencies  $f_c$  for the rated area (0.8 ... 1.3  $q_{Vopt}$ ).

| RLE E_- | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 Hz |
|---------|----|-----|-----|-----|------|------|------|---------|
| 3540    | -9 | -9  | -6  | -8  | -3   | -7   | -12  | -19 dB  |

# RLE E1-/E3-/E6-3540-EC-04/M4

THE EVOLUTION  
CONTINUES.  
**RLE<sup>EVO</sup>**

## Technical Data

| Fan type              | Max. power consumption | Voltage/ connection | Frequency | max. speed | $L_{WA5}$ at $Q_{Vopt}$ ( $N_{max}$ ) | Nominal current | Protection/ temp. class | Calibration factor | media temp. |
|-----------------------|------------------------|---------------------|-----------|------------|---------------------------------------|-----------------|-------------------------|--------------------|-------------|
| RLE E1-/E3-/E6-       | kW                     | V                   | Hz        | 1/min      | dB                                    | A               |                         | m²s/h              | °C          |
| RLE ...-3540-EC-04/M4 | 1.20                   | 380...480, 3~       | 50/60     | 2050       | 77                                    | 2.1*            | IP54/F                  | 128                | -20...+40   |

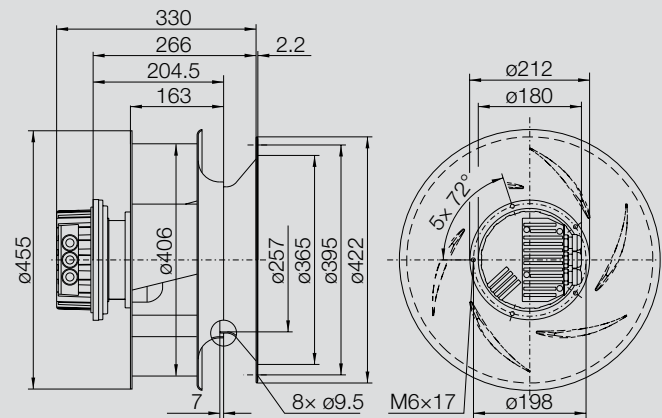
$L_{WA6}$  = A-weighted sound power level at discharge

\* at a voltage of 400 V

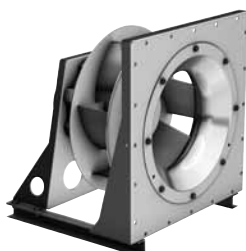
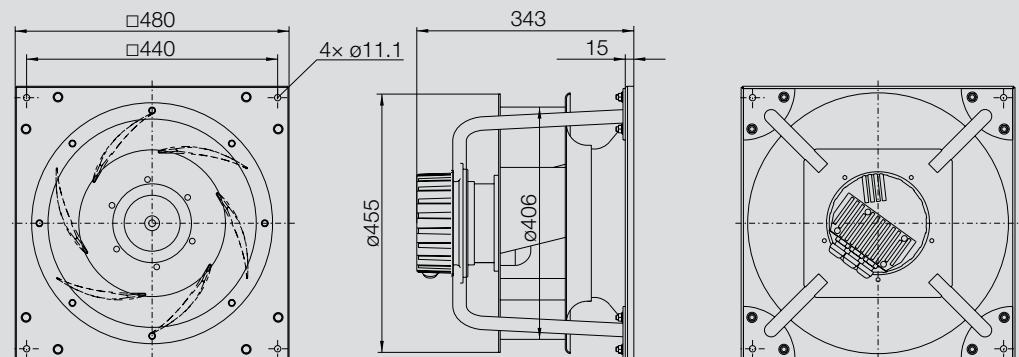
## Dimensions in mm, subject to change.



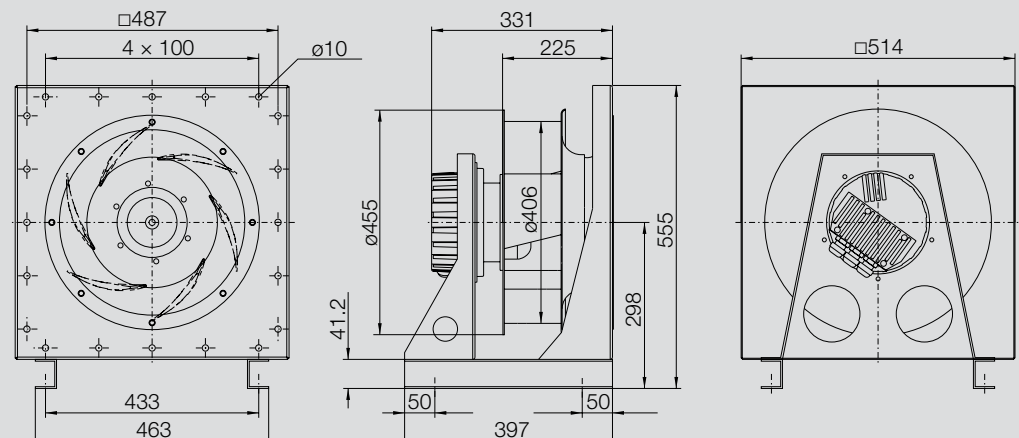
RLE E1-3540-EC-04/M4 14 kg



RLE E3-3540-EC-04/M4 21 kg



RLE E6-3540-EC-04/M4 24 kg

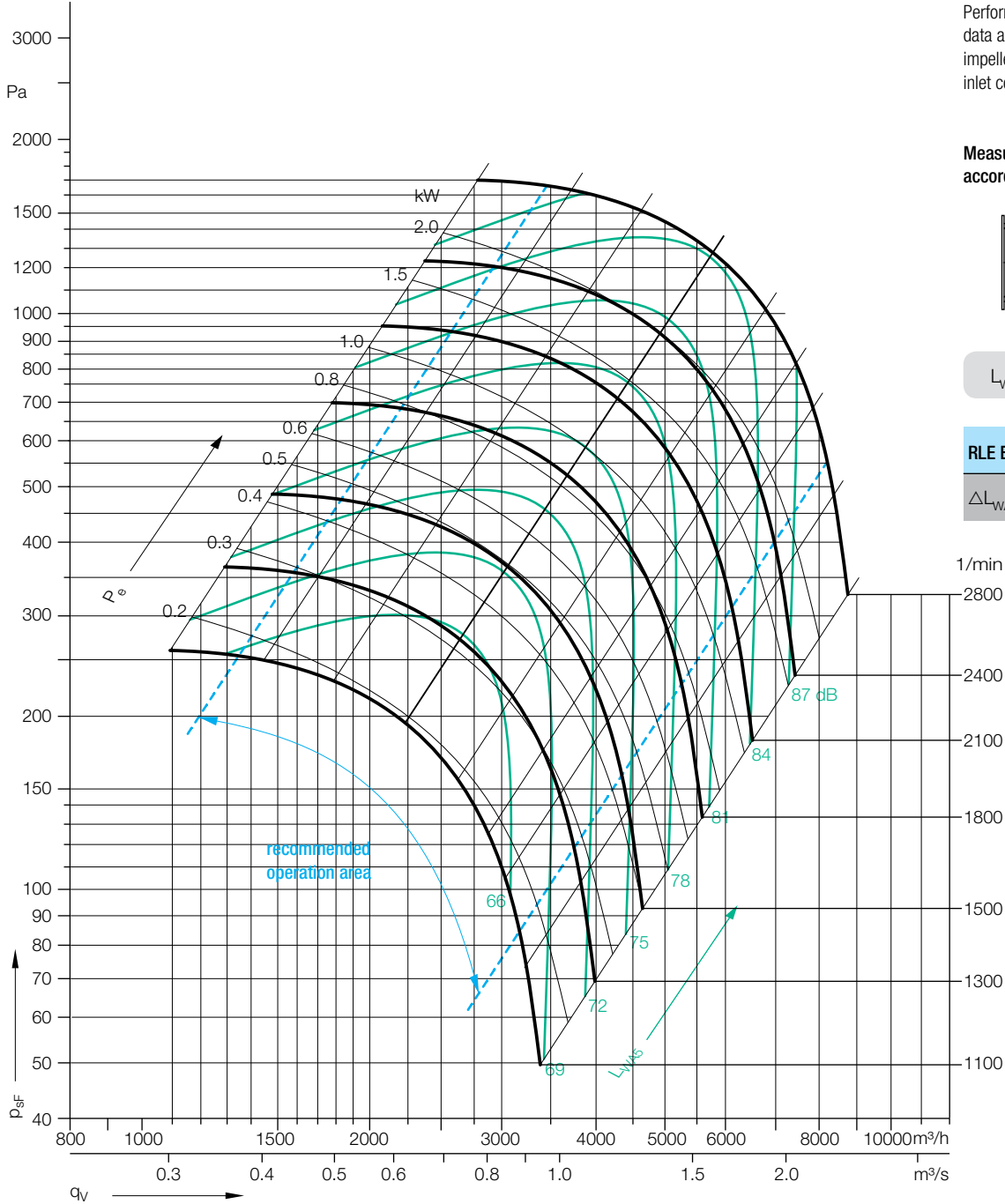




# RLE E1-/E3-/E6- 3540-EC-06/M6

THE EVOLUTION  
CONTINUES.  
**RLE<sup>EVO</sup>**

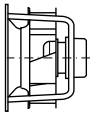
Performance charts



$\rho_1=1.20 \text{ kg/m}^3$

Performance curves and sound data are valid only for the motor impeller in connection with our inlet cone!

Measured in installation A according to ISO 5801:



$L_{WA6} = L_{WA5} + \Delta L_{WA}$

|                 |       |
|-----------------|-------|
| RLE E_-         | 3540  |
| $\Delta L_{WA}$ | +6 dB |

Sounds

The value for the discharge side  $L_{WA6}$  can be calculated with the following formula.

Inlet side

Relative sound power level for inlet side  $L_{Wrel5}$  at octave centre frequencies  $f_c$  for the rated area (0.8 ... 1.3  $q_{Vopt}$ ).

$L_{Wfc5} = L_{WA5} + L_{Wrel5}$

| RLE E_- | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 Hz |
|---------|----|-----|-----|-----|------|------|------|---------|
| 3540    | -5 | -2  | 0   | -2  | -5   | -9   | -14  | -18 dB  |

Discharge

Relative sound power level for discharge side  $L_{Wrel6}$  at octave centre frequencies  $f_c$  for the rated area (0.8 ... 1.3  $q_{Vopt}$ ).

$L_{Wfc6} = L_{WA6} + L_{Wrel6}$

| RLE E_- | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 Hz |
|---------|----|-----|-----|-----|------|------|------|---------|
| 3540    | -9 | -9  | -6  | -8  | -3   | -7   | -12  | -19 dB  |

# RLE E1-/E3-/E6-3540-EC-06/M6

THE EVOLUTION  
CONTINUES.  
**RLE<sup>EVO</sup>**

## Technical Data

| Fan type              | Max. power consumption | Voltage/ connection | Frequency | max. speed | $L_{WA5}$ at $Q_{Vopt}$ ( $N_{max}$ ) | Nominal current | Protection/ temp. class | Calibration factor | media temp. |
|-----------------------|------------------------|---------------------|-----------|------------|---------------------------------------|-----------------|-------------------------|--------------------|-------------|
| RLE E1-/E3-/E6-       | kW                     | V                   | Hz        | 1/min      | dB                                    | A               |                         | m²s/h              | °C          |
| RLE ...-3540-EC-06/M6 | 3.00                   | 380...480, 3~       | 50/60     | 2800       | 84                                    | 4.8*            | IP54/F                  | 127                | -20...+40   |

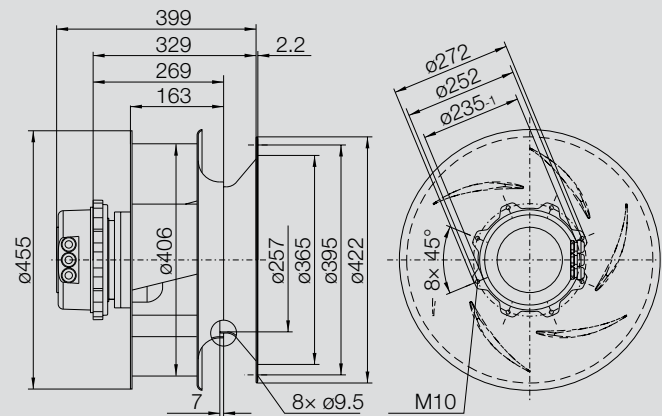
$L_{WA6}$  = A-weighted sound power level at discharge

\* at a voltage of 400 V

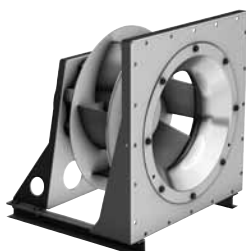
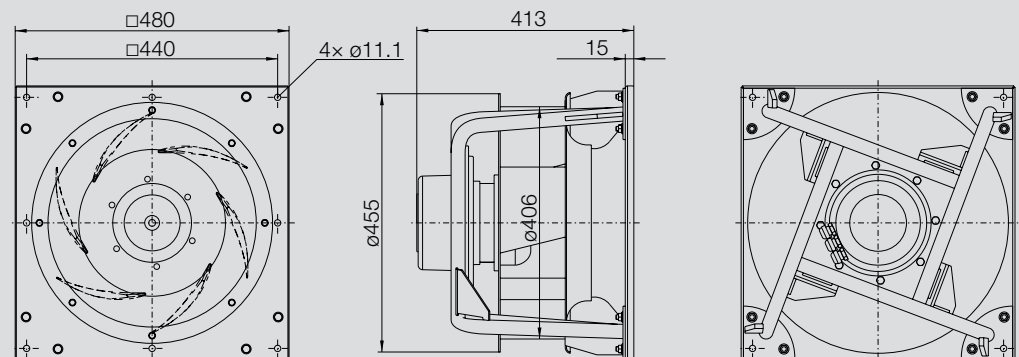
## Dimensions in mm, subject to change.



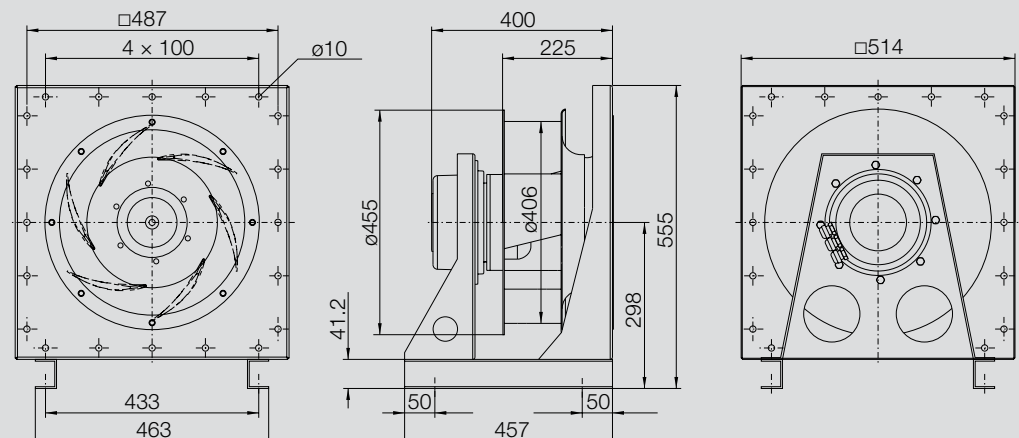
RLE E1-3540-EC-06/M6 25 kg



RLE E3-3540-EC-06/M6 38 kg



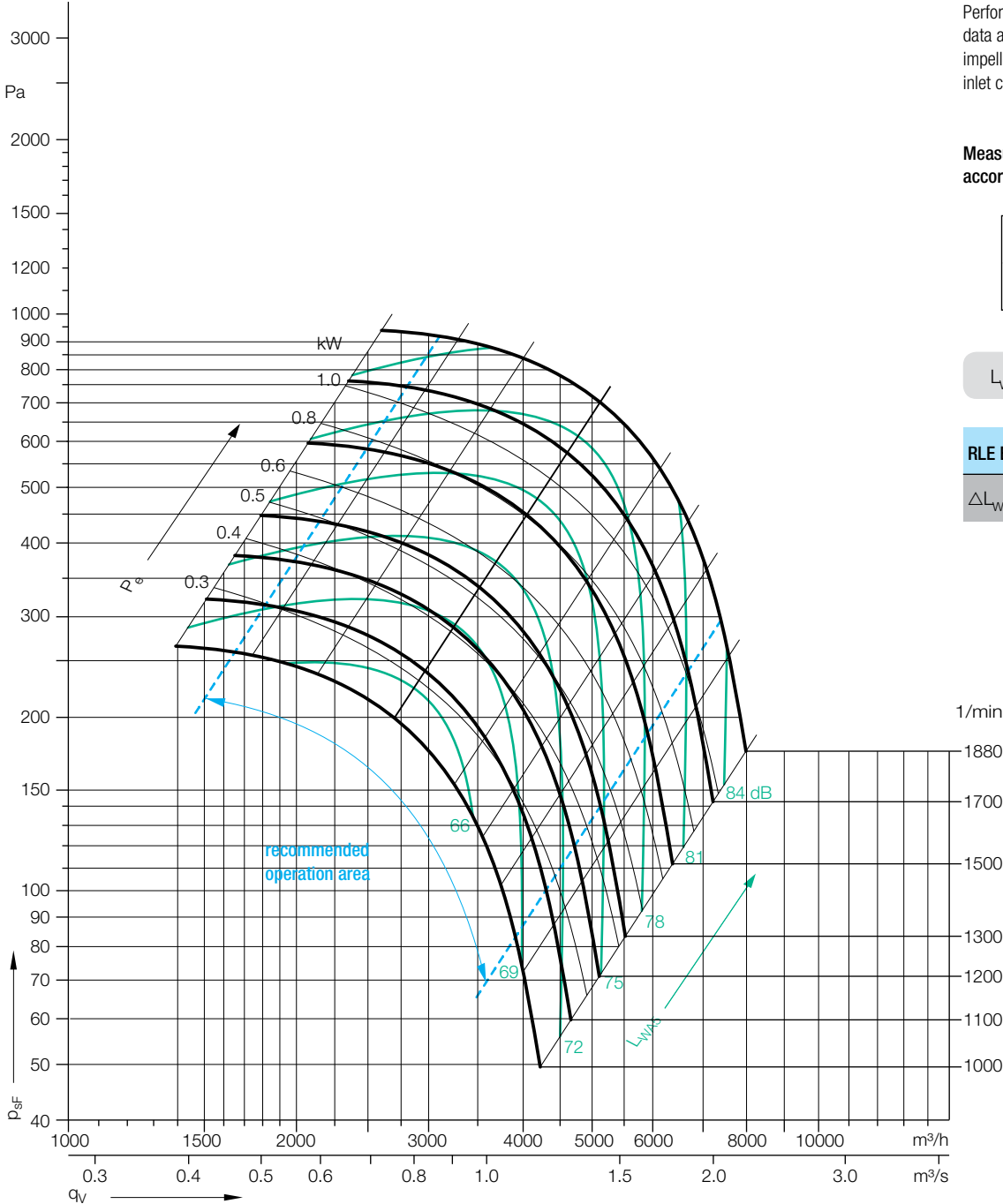
RLE E6-3540-EC-06/M6 36 kg



RLE E1-/E3-/E6-  
4045-EC-05/M5

THE EVOLUTION  
CONTINUES.  
RLE<sup>EVO</sup>

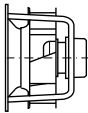
Performance charts



$\rho_1=1.20 \text{ kg/m}^3$

Performance curves and sound data are valid only for the motor impeller in connection with our inlet cone!

Measured in installation A according to ISO 5801:



$L_{WA6} = L_{WA5} + \Delta L_{WA}$

|                 |       |
|-----------------|-------|
| RLE E_-         | 4045  |
| $\Delta L_{WA}$ | +4 dB |

Sounds

The value for the discharge side  $L_{WA6}$  can be calculated with the following formula.

Inlet side

$L_{Wfc5} = L_{WA5} + L_{Wrel5}$

Relative sound power level for inlet side  $L_{Wrel5}$  at octave centre frequencies  $f_c$  for the rated area (0.8 ... 1.3  $q_{Vopt}$ ).

| RLE E_- | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 Hz |
|---------|----|-----|-----|-----|------|------|------|---------|
| 4045    | 1  | 4   | 1   | -1  | -8   | -12  | -17  | -20 dB  |

Discharge

$L_{Wfc6} = L_{WA6} + L_{Wrel6}$

Relative sound power level for discharge side  $L_{Wrel6}$  at octave centre frequencies  $f_c$  for the rated area (0.8 ... 1.3  $q_{Vopt}$ ).

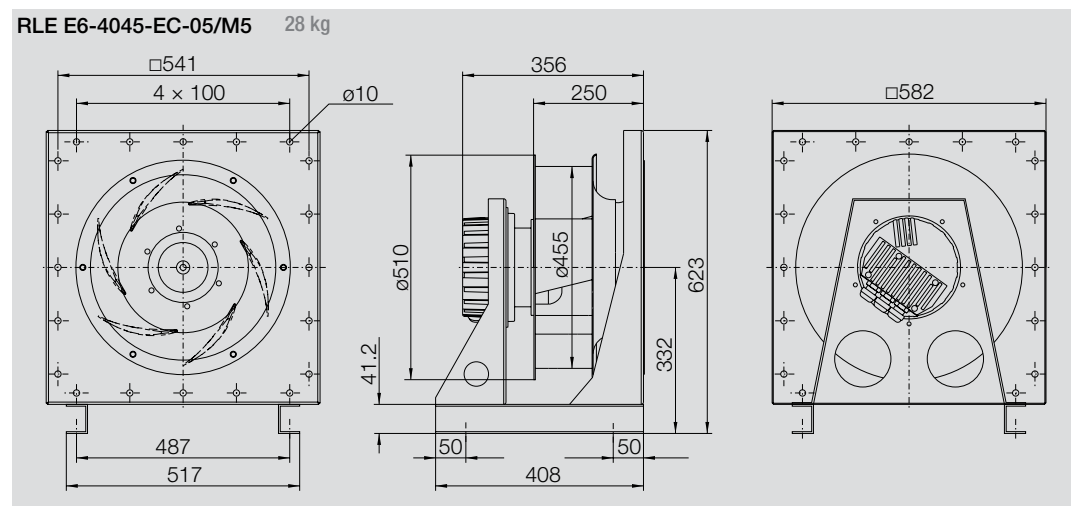
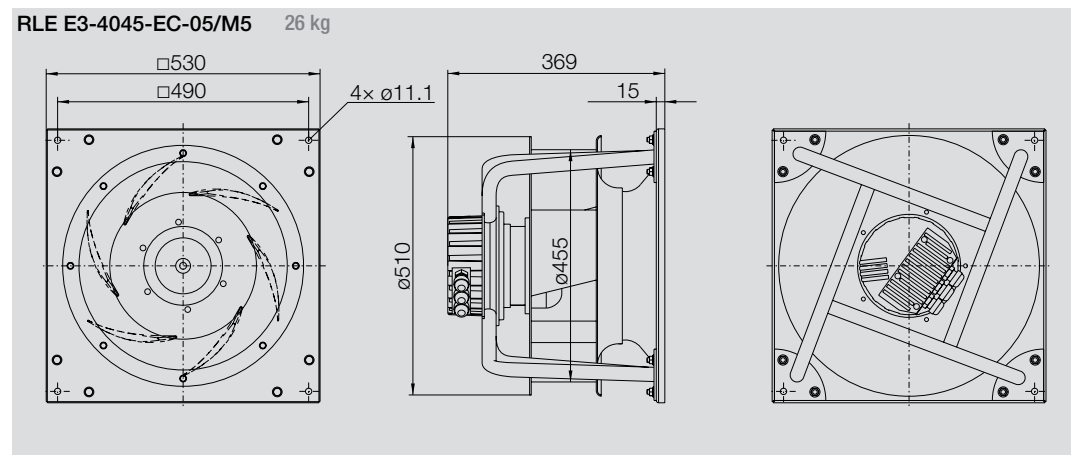
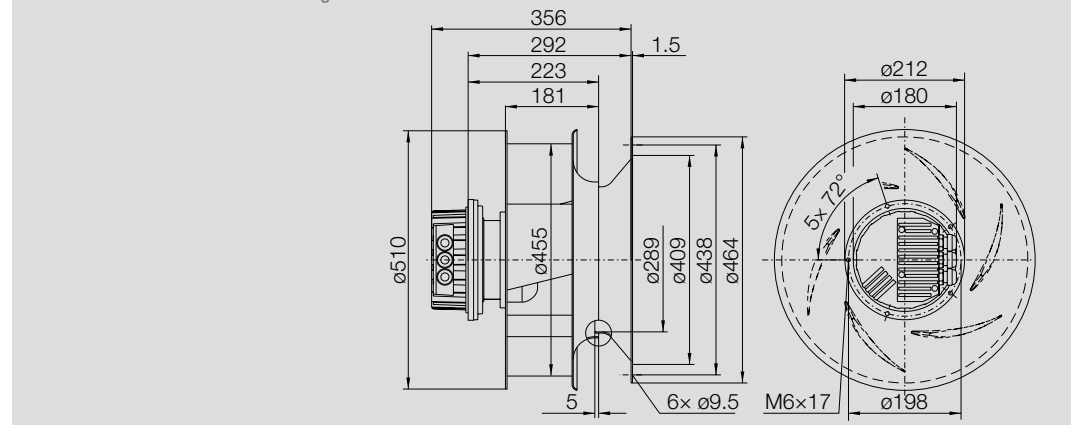
| RLE E_- | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 Hz |
|---------|----|-----|-----|-----|------|------|------|---------|
| 4045    | -5 | -5  | -4  | -4  | -4   | -8   | -13  | -19 dB  |

THE EVOLUTION  
CONTINUES.  
**RLE**<sup>EVO</sup>

| Fan type             | Max. power consumption | Voltage/ connection | Frequency | max. speed | L <sub>WA5</sub> at Q <sub>1opt</sub> (N <sub>max</sub> ) | Nominal current | Protection/ temp. class | Calibration factor | media temp. |
|----------------------|------------------------|---------------------|-----------|------------|-----------------------------------------------------------|-----------------|-------------------------|--------------------|-------------|
| RLE E1-/E3-/E6-      | kW                     | V                   | Hz        | 1/min      | dB                                                        | A               |                         | m²s/h              | °C          |
| RLE ..-4045-EC-05/M5 | 1.50                   | 380...480, 3~       | 50/60     | 1880       | 80                                                        | 2.5*            | IP54/F                  | 155                | -20...+40   |

\* at a voltage of 400 V

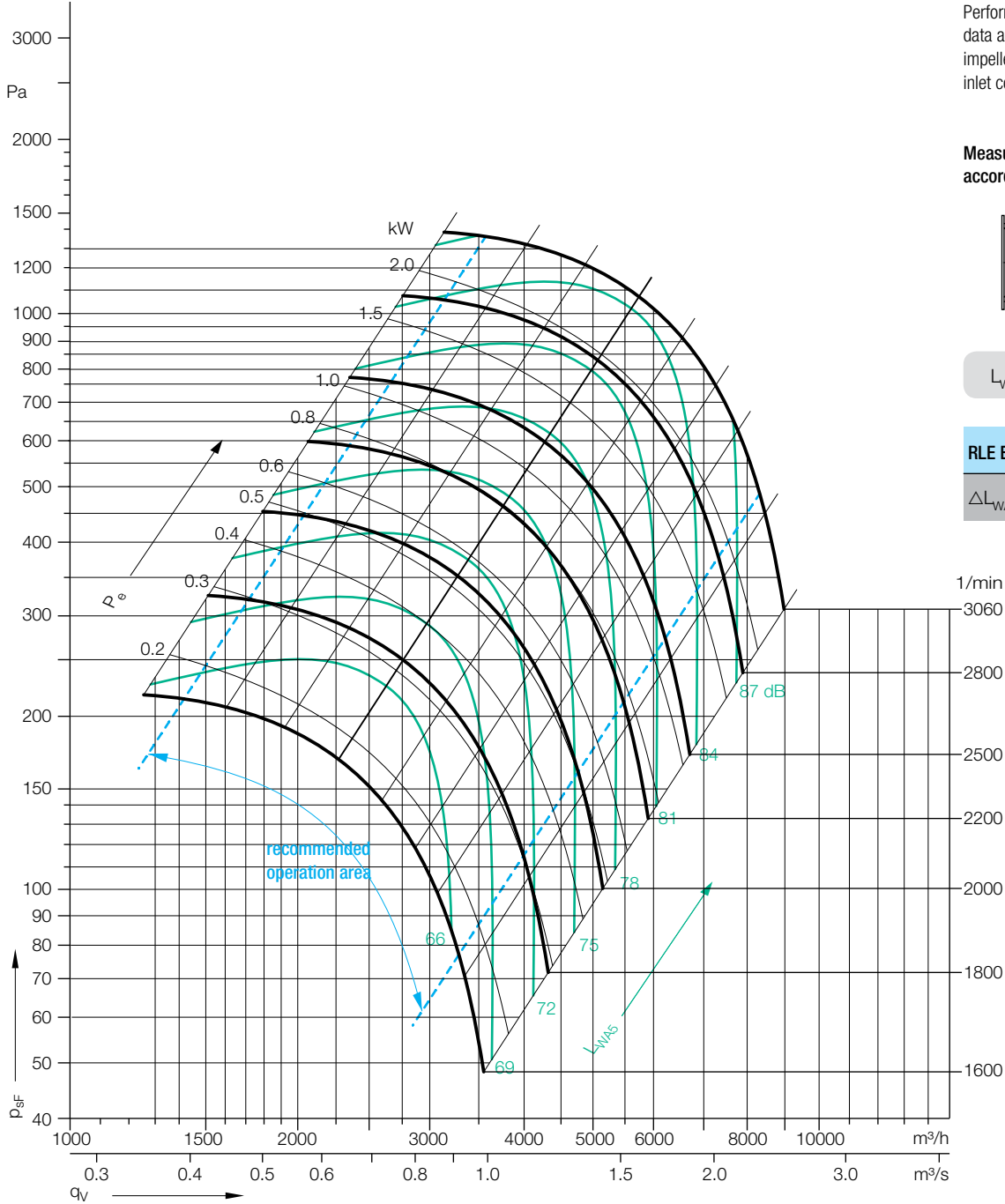
RLE E1-4045-EC-05/M5 20 kg



# RLE E1-/E3-/E6-4045-EC-06/M6

THE EVOLUTION  
CONTINUES.  
RLE<sup>EVO</sup>

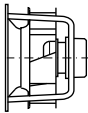
Performance charts



$\rho_1=1.20 \text{ kg/m}^3$

Performance curves and sound data are valid only for the motor impeller in connection with our inlet cone!

Measured in installation A according to ISO 5801:



$L_{WA6} = L_{WA5} + \Delta L_{WA}$

|                 |       |
|-----------------|-------|
| RLE E_-         | 4045  |
| $\Delta L_{WA}$ | +4 dB |

Sounds

The value for the discharge side  $L_{WA6}$  can be calculated with the following formula.

Inlet side

$L_{Wfc5} = L_{WA5} + L_{Wrel5}$

Relative sound power level for inlet side  $L_{Wrel5}$  at octave centre frequencies  $f_c$  for the rated area (0.8 ... 1.3  $q_{Vopt}$ ).

| RLE E_- | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 Hz |
|---------|----|-----|-----|-----|------|------|------|---------|
| 4045    | 1  | 4   | 1   | -1  | -8   | -12  | -17  | -20 dB  |

Discharge

$L_{Wfc6} = L_{WA6} + L_{Wrel6}$

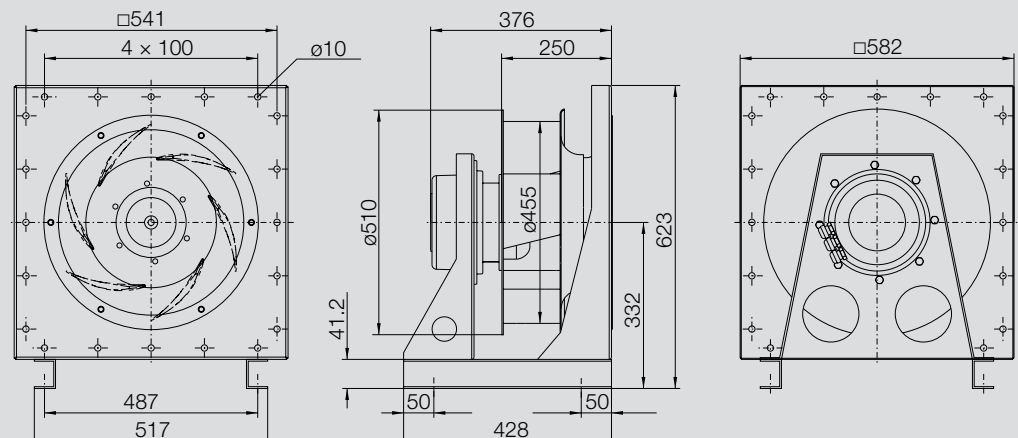
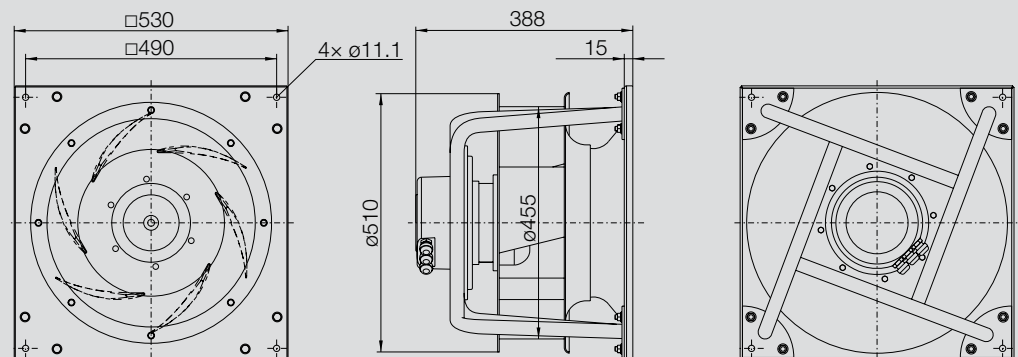
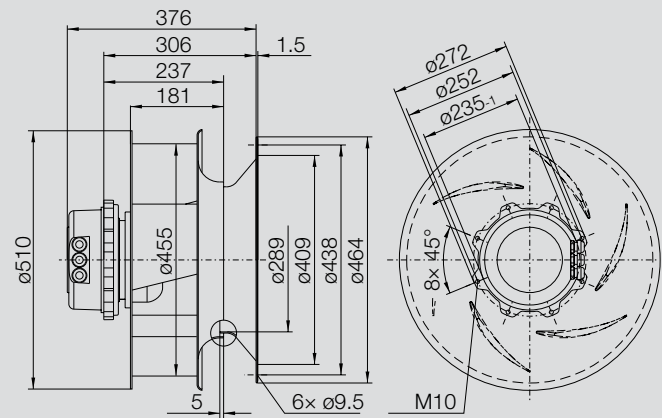
Relative sound power level for discharge side  $L_{Wrel6}$  at octave centre frequencies  $f_c$  for the rated area (0.8 ... 1.3  $q_{Vopt}$ ).

| RLE E_- | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 Hz |
|---------|----|-----|-----|-----|------|------|------|---------|
| 4045    | -5 | -5  | -4  | -4  | -4   | -8   | -13  | -19 dB  |

## Technical Data

\* at a voltage of 400 V

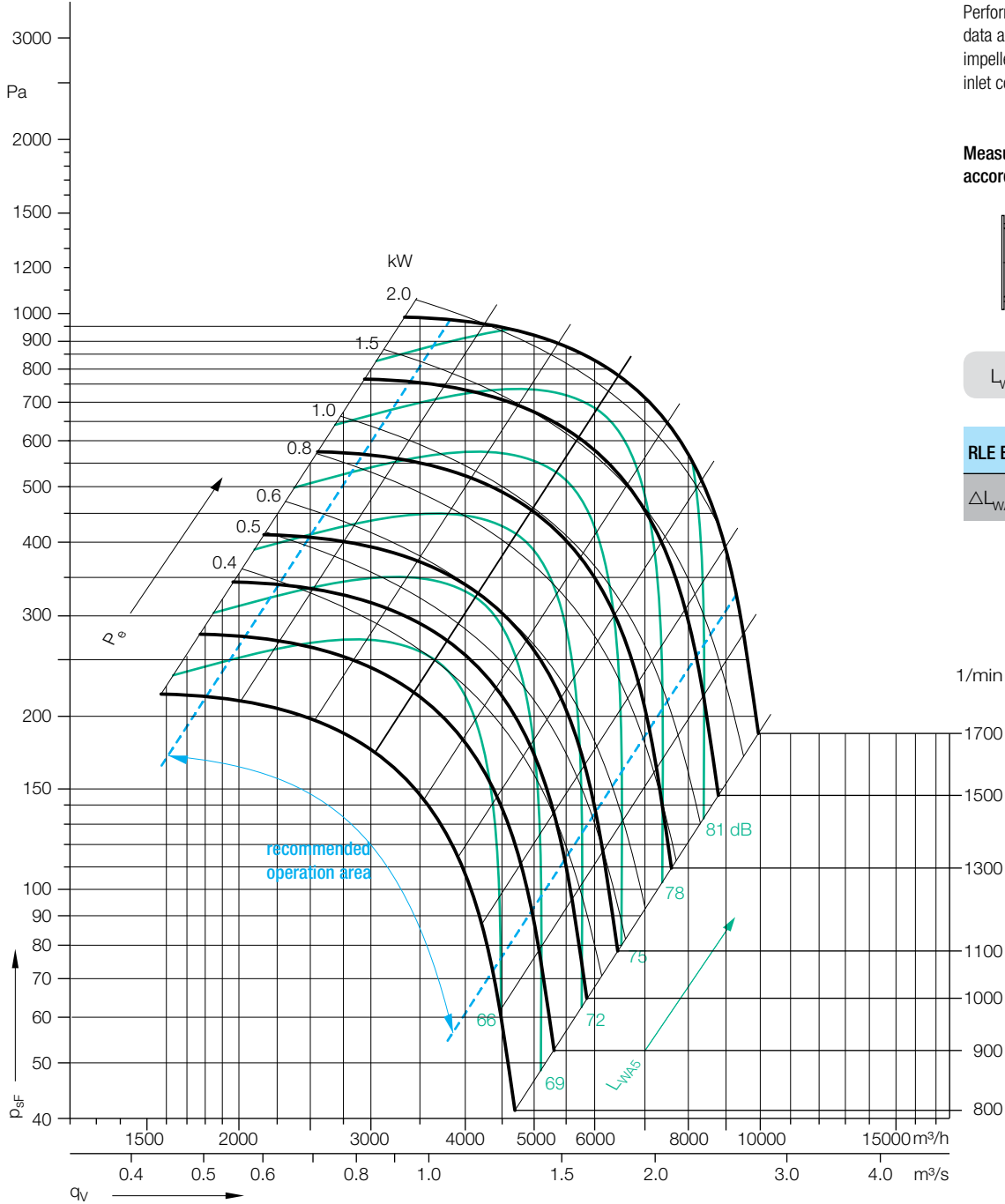
**RLE E1-4045-EC-06/M6** 27 kg



RLE E1-/E3-/E6-  
4550-EC-06/M6

THE EVOLUTION  
CONTINUES.  
RLE<sup>EVO</sup>

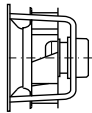
Performance charts



$\rho_1 = 1.20 \text{ kg/m}^3$

Performance curves and sound data are valid only for the motor impeller in connection with our inlet cone!

Measured in installation A according to ISO 5801:



$L_{WA6} = L_{WA5} + \Delta L_{WA}$

|                 |       |
|-----------------|-------|
| RLE E_-         | 4550  |
| $\Delta L_{WA}$ | +4 dB |

Sounds

The value for the discharge side  $L_{WA6}$  can be calculated with the following formula.

Inlet side

$L_{Wfc5} = L_{WA5} + L_{Wrel5}$

Relative sound power level for inlet side  $L_{Wrel5}$  at octave centre frequencies  $f_c$  for the rated area (0.8 ... 1.3  $q_{Vopt}$ ).

| RLE E_- | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 Hz |
|---------|----|-----|-----|-----|------|------|------|---------|
| 4550    | 3  | 4   | 0   | -1  | -8   | -11  | -14  | -16 dB  |

Discharge

$L_{Wfc6} = L_{WA6} + L_{Wrel6}$

Relative sound power level for discharge side  $L_{Wrel6}$  at octave centre frequencies  $f_c$  for the rated area (0.8 ... 1.3  $q_{Vopt}$ ).

| RLE E_- | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 Hz |
|---------|----|-----|-----|-----|------|------|------|---------|
| 4550    | -2 | -3  | -5  | -5  | -3   | -8   | -14  | -19 dB  |



# RLE E1-/E3-/E6-4550-EC-06/M6

THE EVOLUTION  
CONTINUES.  
**RLE<sup>EVO</sup>**

## Technical Data

| Fan type              | Max. power consumption | Voltage/ connection | Frequency | max. speed | $L_{WA5}$ at $Q_{Vopt}$ ( $N_{max}$ ) | Nominal current | Protection/ temp. class | Calibration factor | media temp. |
|-----------------------|------------------------|---------------------|-----------|------------|---------------------------------------|-----------------|-------------------------|--------------------|-------------|
| RLE E1-/E3-/E6-       | kW                     | V                   | Hz        | 1/min      | dB                                    | A               |                         | m <sup>2</sup> s/h | °C          |
| RLE ...-4550-EC-06/M6 | 2.00                   | 380...480, 3~       | 50/60     | 1700       | 80                                    | 3.3*            | IP54/F                  | 184                | -20...+40   |

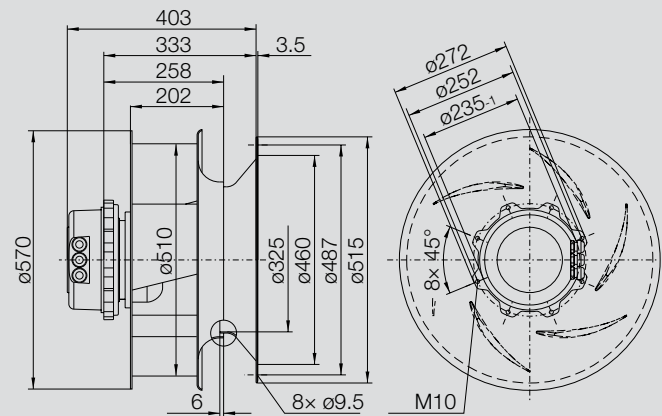
$L_{WA6}$  = A-weighted sound power level at discharge

\* at a voltage of 400 V

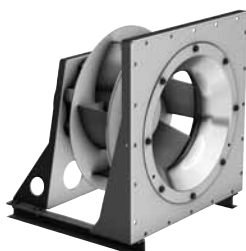
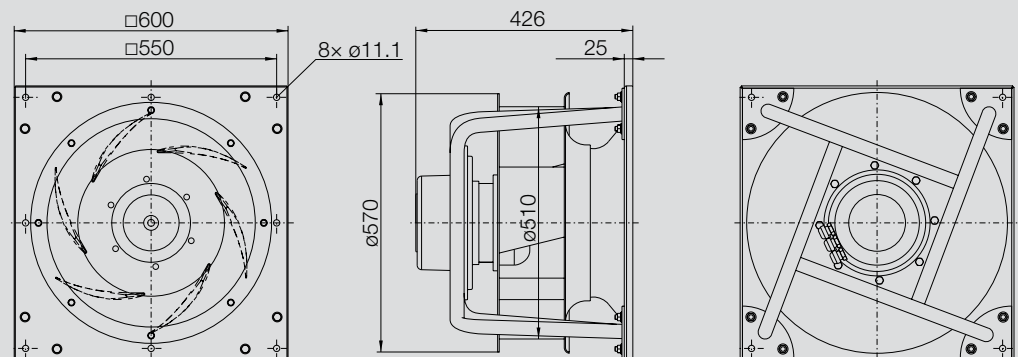
## Dimensions in mm, subject to change.



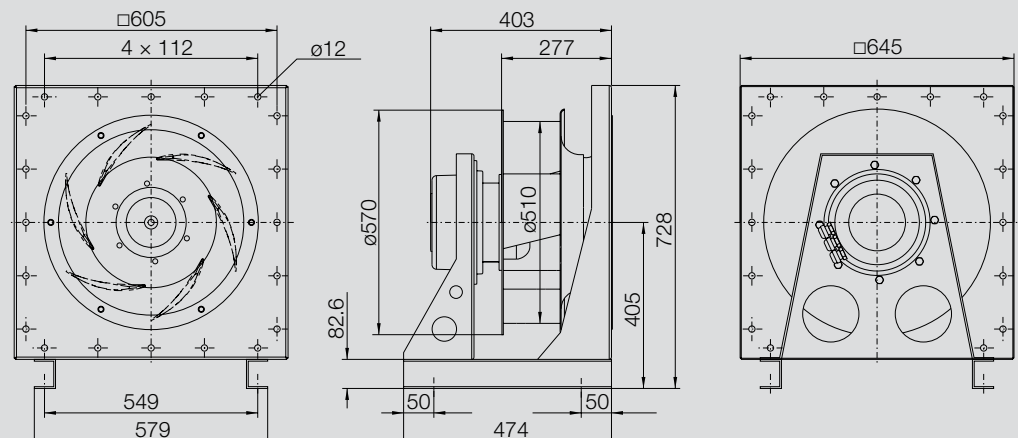
RLE E1-4550-EC-06/M6 32 kg



RLE E3-4550-EC-06/M6 47 kg



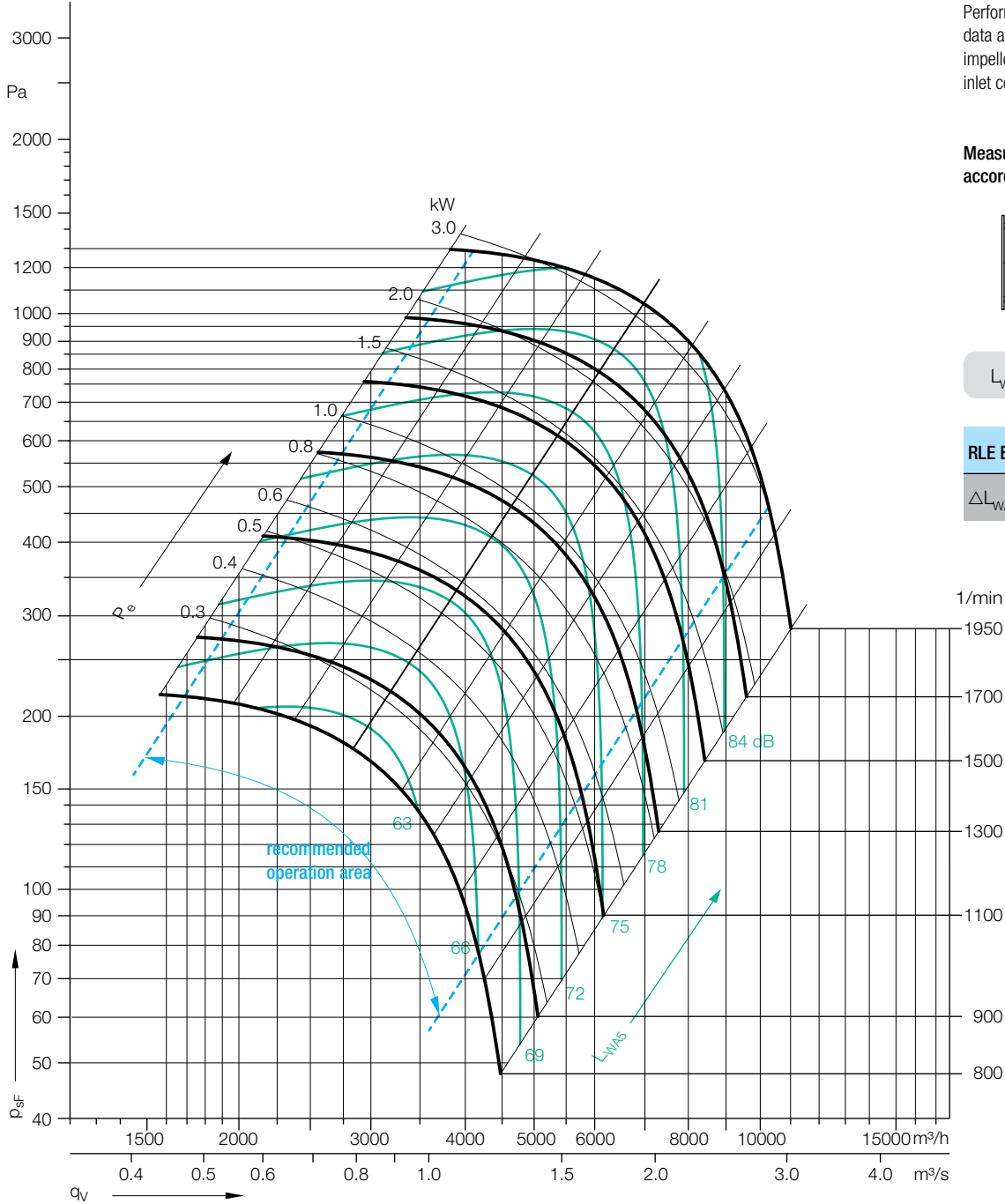
RLE E6-4550-EC-06/M6 47 kg



# RLE E1-/E3-/E6-4550-EC-07/M7

THE EVOLUTION  
CONTINUES.  
**RLE<sup>EVO</sup>**

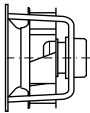
Performance charts



$\rho_1=1.20 \text{ kg/m}^3$

Performance curves and sound data are valid only for the motor impeller in connection with our inlet cone!

Measured in installation A according to ISO 5801:



|                                     |       |
|-------------------------------------|-------|
| $L_{WA6} = L_{WA5} + \Delta L_{WA}$ |       |
| RLE E_-                             | 4550  |
| $\Delta L_{WA}$                     | +4 dB |

Sounds

The value for the discharge side  $L_{WA6}$  can be calculated with the following formula.

Inlet side

$L_{Wfc5} = L_{WA5} + L_{Wrel5}$

Relative sound power level for inlet side  $L_{Wrel5}$  at octave centre frequencies  $f_c$  for the rated area (0.8 ... 1.3  $q_{Vopt}$ ).

| RLE E_- | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 Hz |
|---------|----|-----|-----|-----|------|------|------|---------|
| 4550    | 3  | 4   | 0   | -1  | -8   | -11  | -14  | -16 dB  |

Discharge

$L_{Wfc6} = L_{WA6} + L_{Wrel6}$

Relative sound power level for discharge side  $L_{Wrel6}$  at octave centre frequencies  $f_c$  for the rated area (0.8 ... 1.3  $q_{Vopt}$ ).

| RLE E_- | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 Hz |
|---------|----|-----|-----|-----|------|------|------|---------|
| 4550    | -2 | -3  | -5  | -5  | -3   | -8   | -14  | -19 dB  |

# RLE E1-/E3-/E6-4550-EC-07/M7

THE EVOLUTION  
CONTINUES.  
**RLE<sup>EVO</sup>**

## Technical Data

| Fan type              | Max. power consumption | Voltage/ connection | Frequency | max. speed | $L_{WA5}$ at $Q_{Vopt}$ ( $N_{max}$ ) | Nominal current | Protection/ temp. class | Calibration factor | media temp. |
|-----------------------|------------------------|---------------------|-----------|------------|---------------------------------------|-----------------|-------------------------|--------------------|-------------|
| RLE E1-/E3-/E6-       | kW                     | V                   | Hz        | 1/min      | dB                                    | A               |                         | m²s/h              | °C          |
| RLE ...-4550-EC-07/M7 | 3.20                   | 380...480, 3~       | 50/60     | 1950       | 83                                    | 5.0*            | IP54/F                  | 182                | -20...+40   |

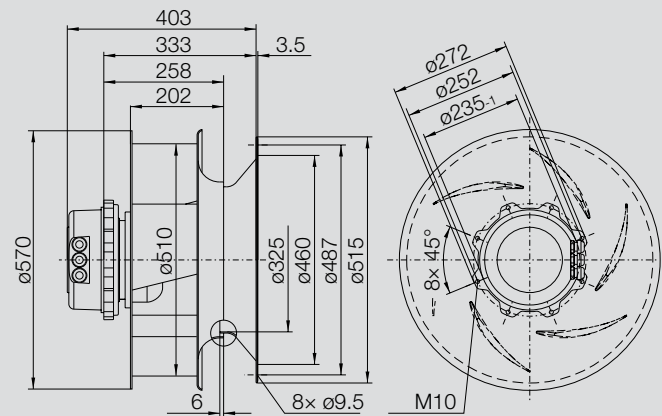
$L_{WA6}$  = A-weighted sound power level at discharge

\* at a voltage of 400 V

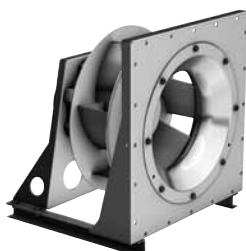
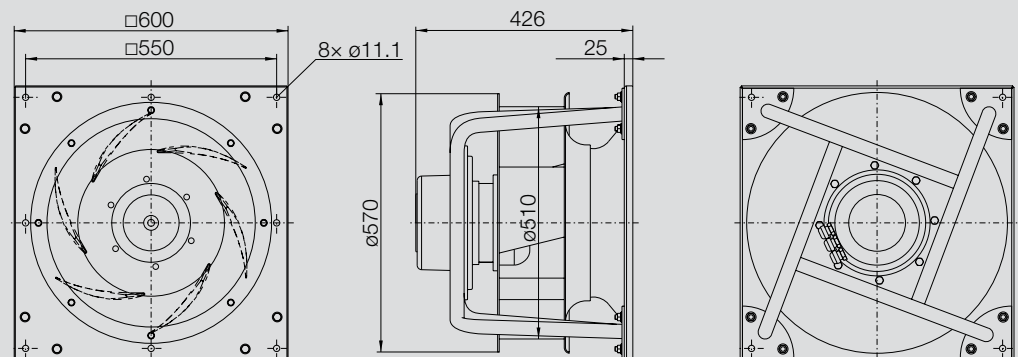
## Dimensions in mm, subject to change.



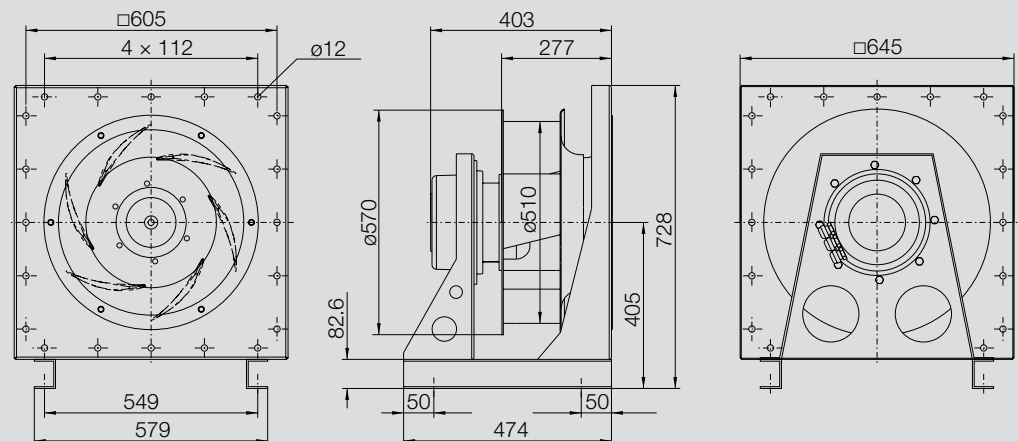
RLE E1-4550-EC-07/M7 36 kg



RLE E3-4550-EC-07/M7 51 kg



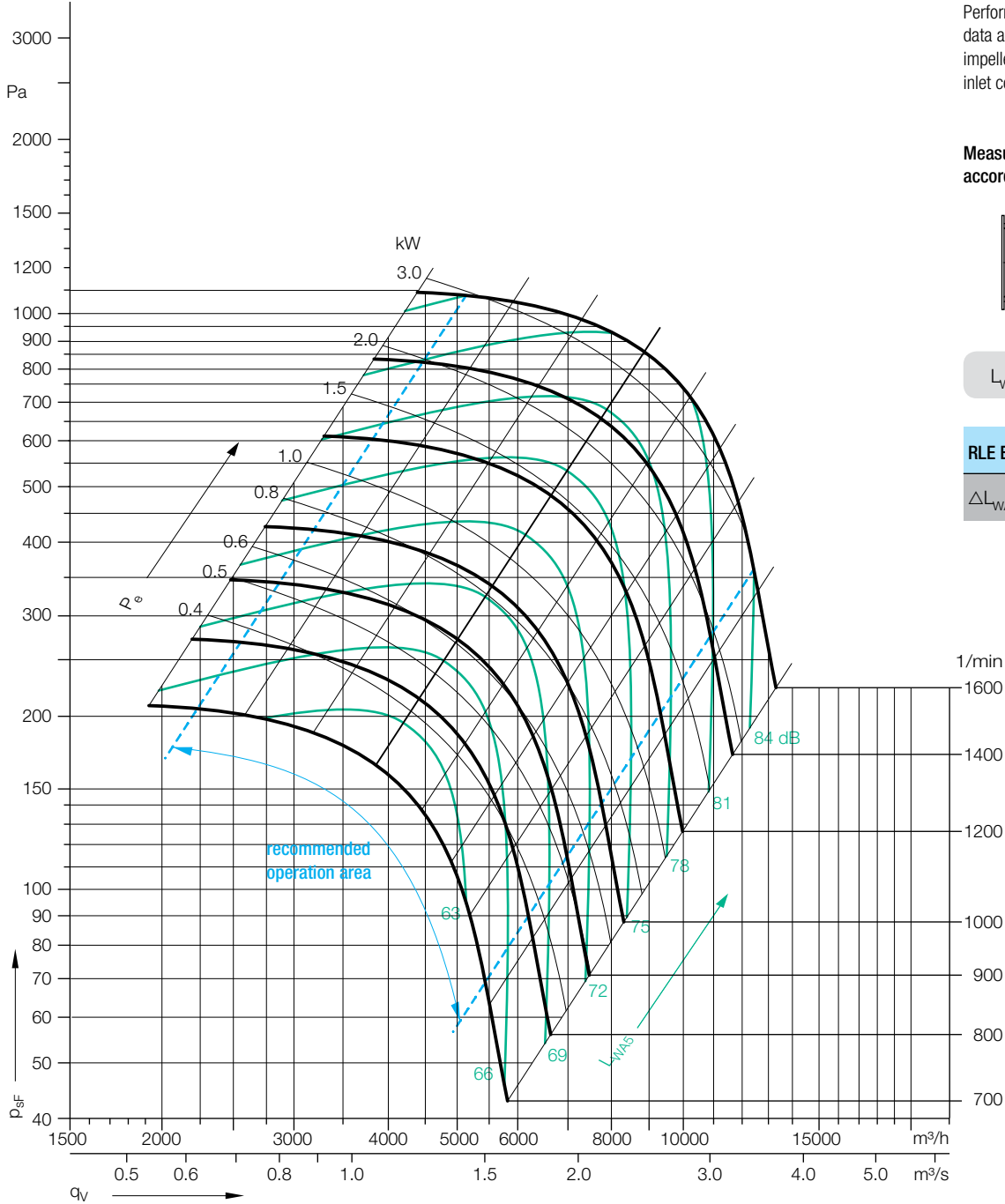
RLE E6-4550-EC-07/M7 51 kg



# RLE E1-/E3-/E6- 5056-EC-07/M7

THE EVOLUTION  
CONTINUES.  
**RLE<sup>EVO</sup>**

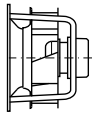
## Performance charts



$\rho_1=1.20 \text{ kg/m}^3$

Performance curves and sound data are valid only for the motor impeller in connection with our inlet cone!

Measured in installation A according to ISO 5801:



|                                     |       |
|-------------------------------------|-------|
| $L_{WA6} = L_{WA5} + \Delta L_{WA}$ |       |
| RLE E_-                             | 5056  |
| $\Delta L_{WA}$                     | +5 dB |

## Sounds

The value for the discharge side  $L_{WA6}$  can be calculated with the following formula.

### Inlet side

$L_{Wfc5} = L_{WA5} + L_{Wrel5}$

Relative sound power level for inlet side  $L_{Wrel5}$  at octave centre frequencies  $f_c$  for the rated area (0.8 ... 1.3  $q_{Vopt}$ ).

| RLE E_- | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 Hz |
|---------|----|-----|-----|-----|------|------|------|---------|
| 5056    | 3  | 3   | 1   | -1  | -6   | -11  | -14  | -18 dB  |

### Discharge

$L_{Wfc6} = L_{WA6} + L_{Wrel6}$

Relative sound power level for discharge side  $L_{Wrel6}$  at octave centre frequencies  $f_c$  for the rated area (0.8 ... 1.3  $q_{Vopt}$ ).

| RLE E_- | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 Hz |
|---------|----|-----|-----|-----|------|------|------|---------|
| 5056    | -2 | -4  | -5  | -2  | -4   | -10  | -17  | -20 dB  |

**RLE E1-/E3-/E6-  
5056-EC-07/M7**

## Technical Data

| Fan type            | Max. power consumption | Voltage/ connection | Frequency | max. speed | L <sub>WAS</sub> at q <sub>lopt</sub> (N <sub>max</sub> ) | Nominal current | Protection/ temp. class | Calibration factor | media temp. |
|---------------------|------------------------|---------------------|-----------|------------|-----------------------------------------------------------|-----------------|-------------------------|--------------------|-------------|
| RLE E1-/E3-/E6-     | kW                     | V                   | Hz        | 1/min      | dB                                                        | A               |                         | m²s/h              | °C          |
| RLE ..5056-EC-07/M7 | 3.30                   | 380...480, 3~       | 50/60     | 1600       | 81                                                        | 5.2*            | IP54/F                  | 242                | -20...+40   |

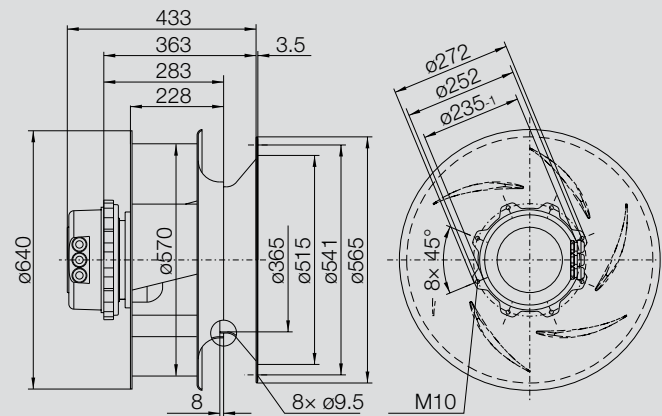
$$L_{WA6} = \text{A-weighted sound power level at discharge}$$

\* at a voltage of 400 V

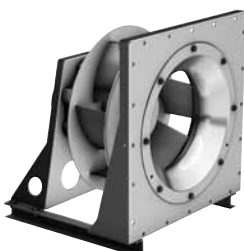
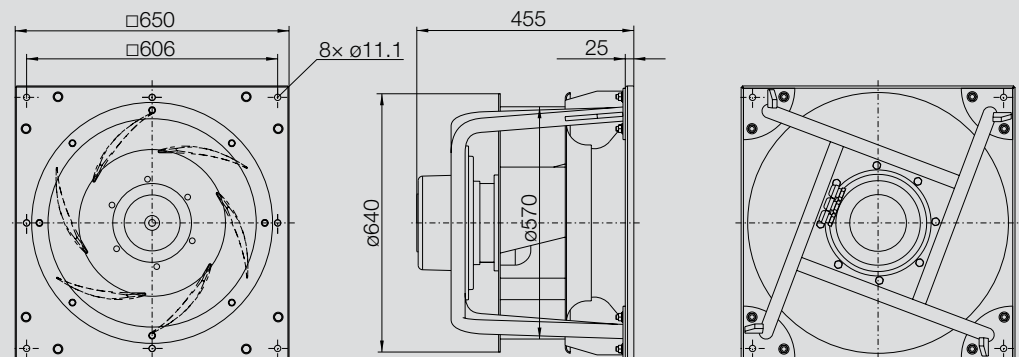
**Dimensions** in mm, subject to change.



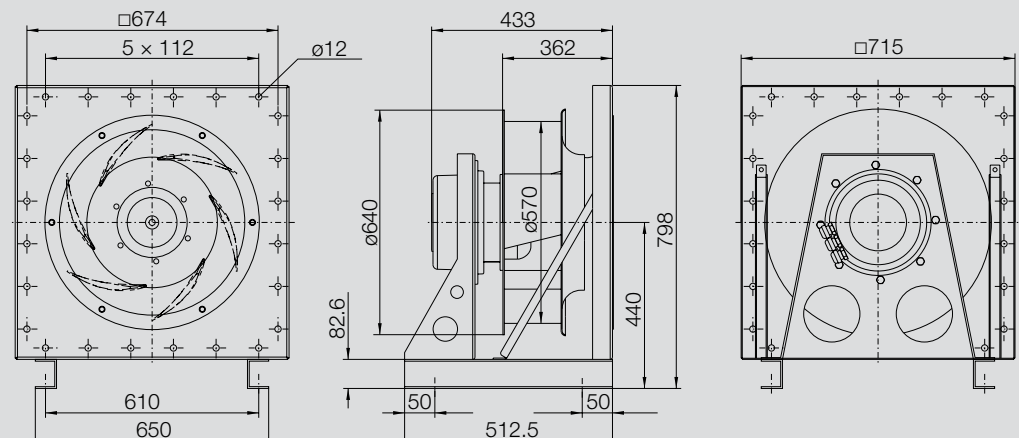
RLE E1-5056-EC-07/M7 41 kg



**RLE E3-5056-EC-07/M7** 57 kg



**RLE E6-5056-EC-07/M7** 59 kg





# RLE E1-/E3-/E6-5663-EC-07/M7

THE EVOLUTION  
CONTINUES.  
**RLE<sup>EVO</sup>**

## Technical Data

| Fan type              | Max. power consumption | Voltage/ connection | Frequency | max. speed | $L_{WA5}$ at $Q_{Vopt}$ ( $N_{max}$ ) | Nominal current | Protection/ temp. class | Calibration factor | media temp. |
|-----------------------|------------------------|---------------------|-----------|------------|---------------------------------------|-----------------|-------------------------|--------------------|-------------|
| RLE E1-/E3-/E6-       | kW                     | V                   | Hz        | 1/min      | dB                                    | A               |                         | m²s/h              | °C          |
| RLE ...-5663-EC-07/M7 | 2.20                   | 380...480, 3~       | 50/60     | 1180       | 75                                    | 3.4*            | IP54/F                  | 303                | -20...+40   |

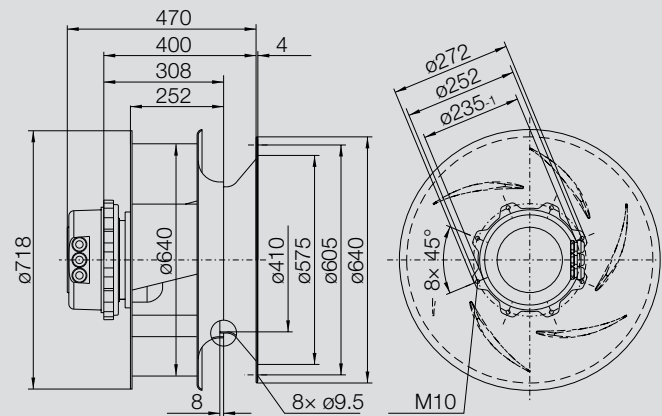
$L_{WA6}$  = A-weighted sound power level at discharge

\* at a voltage of 400 V

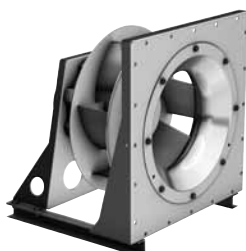
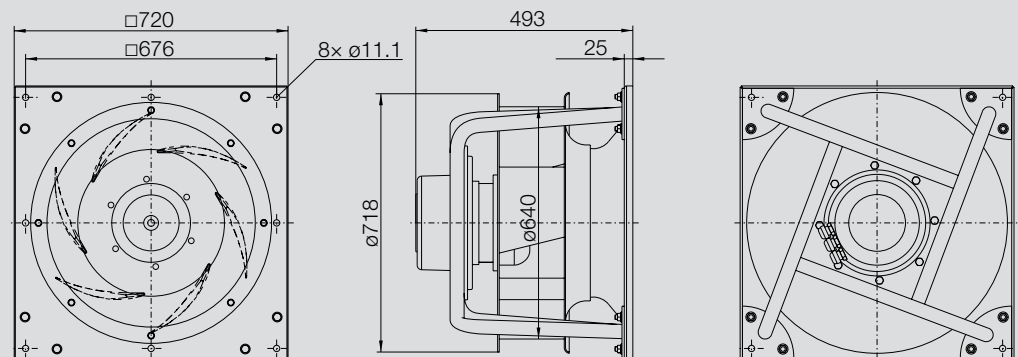
## Dimensions in mm, subject to change.



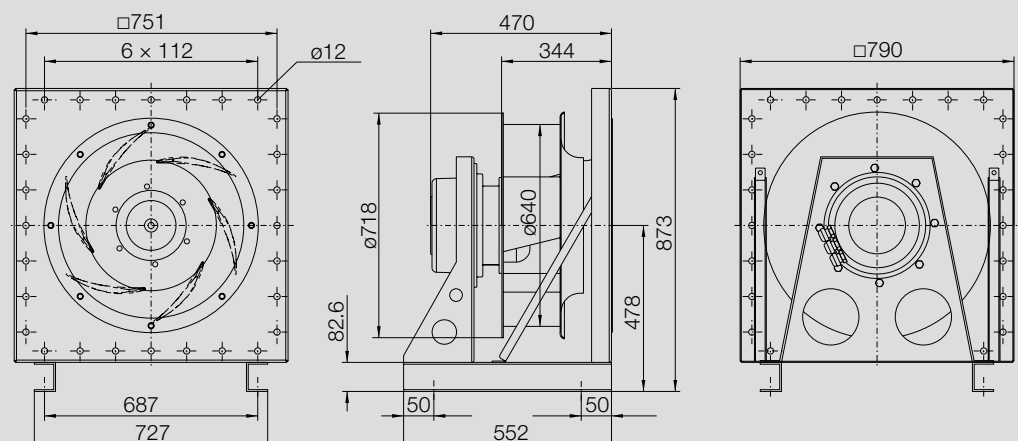
RLE E1-5663-EC-07/M7 47 kg



RLE E3-5663-EC-07/M7 65 kg



RLE E6-5663-EC-07/M7 67 kg

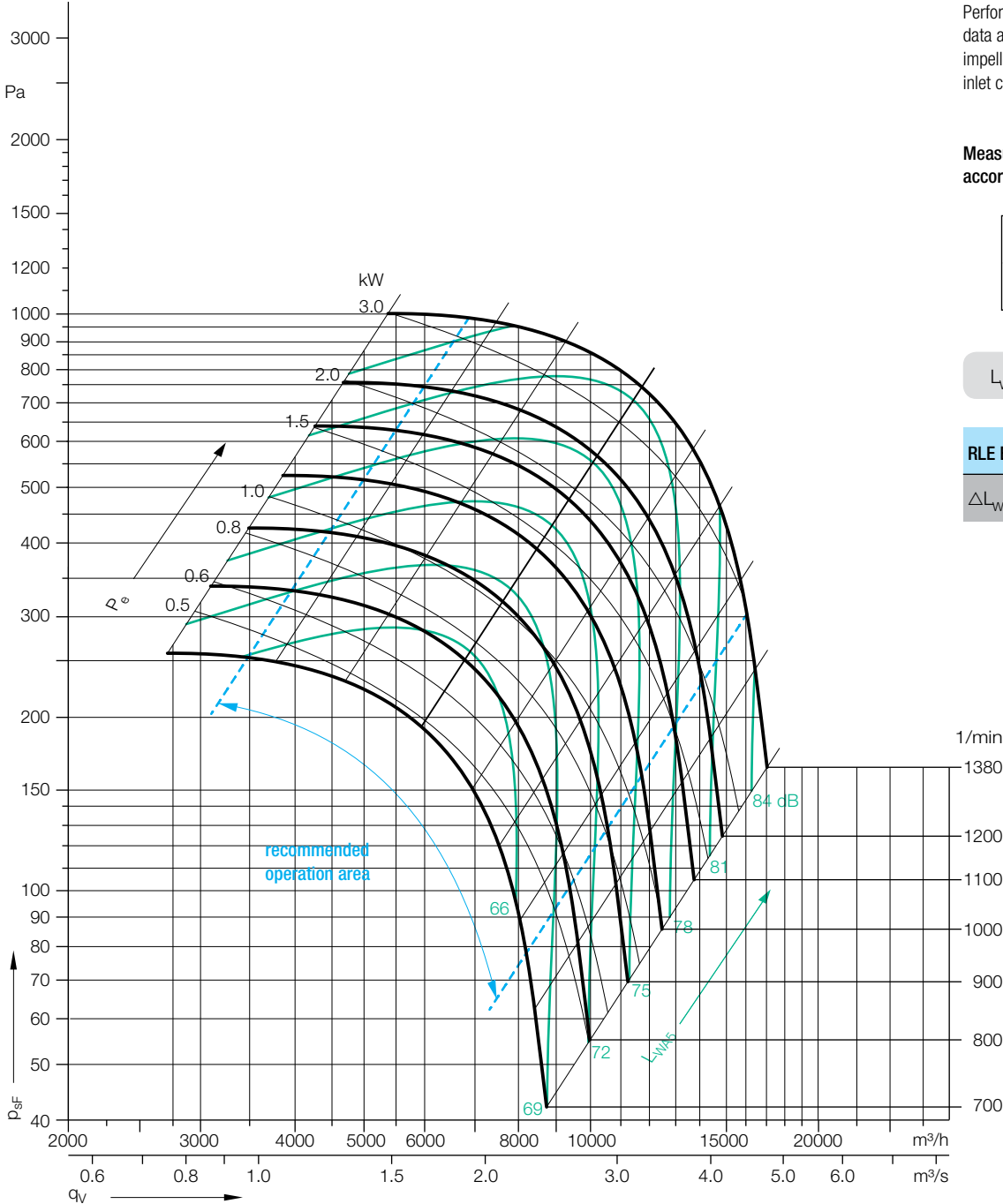




RLE E1-/E3-/E6-  
5663-EC-08/M8

THE EVOLUTION  
CONTINUES.  
RLE<sup>EVO</sup>

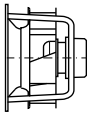
Performance charts



$\rho_1=1.20 \text{ kg/m}^3$

Performance curves and sound data are valid only for the motor impeller in connection with our inlet cone!

Measured in installation A according to ISO 5801:



|                                     |       |
|-------------------------------------|-------|
| $L_{WA6} = L_{WA5} + \Delta L_{WA}$ |       |
| RLE E_-                             | 5663  |
| $\Delta L_{WA}$                     | +6 dB |

Sounds

The value for the discharge side  $L_{WA6}$  can be calculated with the following formula.

Inlet side

$L_{Wfc5} = L_{WA5} + L_{Wrel5}$

Relative sound power level for inlet side  $L_{Wrel5}$  at octave centre frequencies  $f_c$  for the rated area (0.8 ... 1.3  $q_{Vopt}$ ).

| RLE E_- | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 Hz |
|---------|----|-----|-----|-----|------|------|------|---------|
| 5663    | 2  | 2   | 0   | -3  | -4   | -10  | -14  | -21 dB  |

Discharge

$L_{Wfc6} = L_{WA6} + L_{Wrel6}$

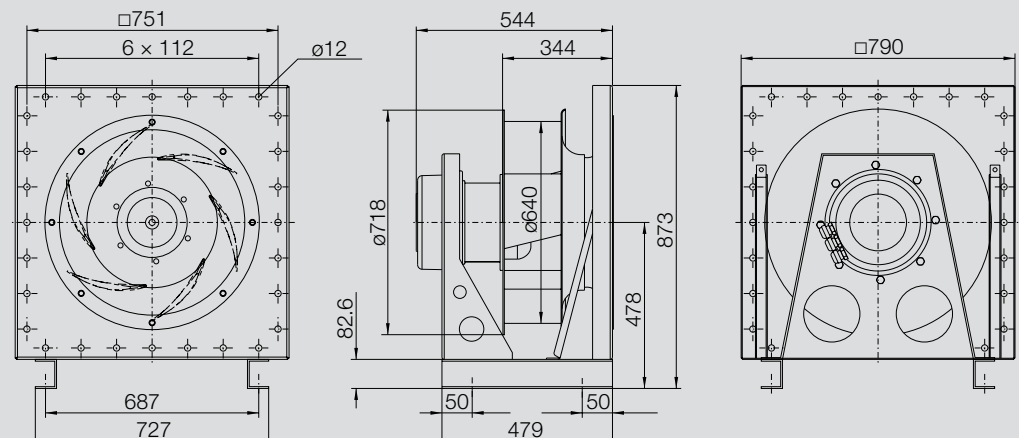
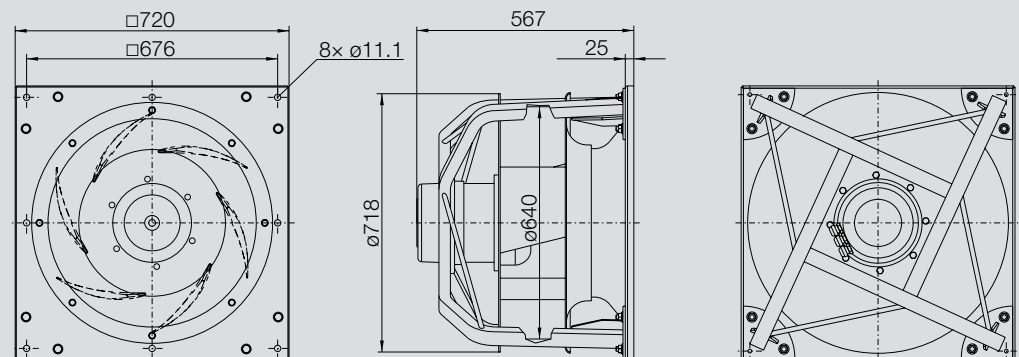
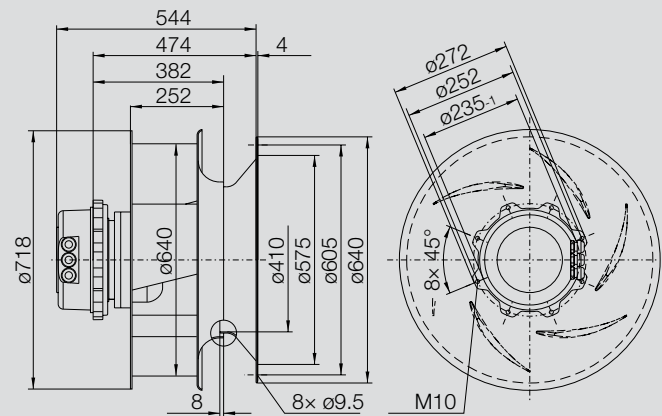
Relative sound power level for discharge side  $L_{Wrel6}$  at octave centre frequencies  $f_c$  for the rated area (0.8 ... 1.3  $q_{Vopt}$ ).

| RLE E_- | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 Hz |
|---------|----|-----|-----|-----|------|------|------|---------|
| 5663    | -3 | -5  | -6  | -6  | -3   | -9   | -17  | -23 dB  |

## Technical Data

\* at a voltage of 400 V

RLE E1-5663-EC-08/M8 53 kg



## Technical Data according to ErP-REGULATION 327/2011/EU

| RLE Evo    | Overall efficiency<br>$\eta_e$ [%] | Measure-<br>ment<br>category | Efficiency<br>category | achieved effici-<br>ency grade at<br>optimum energy<br>efficiency | required<br>efficiency<br>grade acc. to<br>ErP since |      | Speed<br>control (VSD) | Rated motor po-<br>wer at optimum<br>energy efficiency | Flow rate at op-<br>timum energy<br>efficiency | Pressure at op-<br>timum energy<br>efficiency | Speed at op-<br>timum energy<br>efficiency | "specific<br>ratio" |
|------------|------------------------------------|------------------------------|------------------------|-------------------------------------------------------------------|------------------------------------------------------|------|------------------------|--------------------------------------------------------|------------------------------------------------|-----------------------------------------------|--------------------------------------------|---------------------|
|            |                                    |                              |                        | "N"                                                               | 2013                                                 | 2015 |                        |                                                        |                                                |                                               |                                            |                     |
| 2225-EC-02 | 74.31                              | A                            | STATIC                 | 74.3                                                              | 58                                                   | 62   | integrated             | 0.42                                                   | 1596                                           | 572                                           | 3060                                       | 1.006               |
| 2528-EC-02 | 79.56                              | A                            | STATIC                 | 79.6                                                              | 58                                                   | 62   | integrated             | 0.40                                                   | 1804                                           | 512                                           | 2500                                       | 1.005               |
| 2528-EC-04 | 71.94                              | A                            | STATIC                 | 71.9                                                              | 58                                                   | 62   | integrated             | 1.34                                                   | 2565                                           | 1178                                          | 3700                                       | 1.012               |
| 2831-EC-04 | 73.98                              | A                            | STATIC                 | 74.0                                                              | 58                                                   | 62   | integrated             | 1.44                                                   | 3225                                           | 1049                                          | 3200                                       | 1.010               |
| 3135-EC-04 | 74.25                              | A                            | STATIC                 | 74.3                                                              | 58                                                   | 62   | integrated             | 1.40                                                   | 3572                                           | 924                                           | 2600                                       | 1.009               |
| 3540-EC-04 | 76.73                              | A                            | STATIC                 | 76.7                                                              | 58                                                   | 62   | integrated             | 1.16                                                   | 4062                                           | 685                                           | 2050                                       | 1.007               |
| 3540-EC-06 | 71.37                              | A                            | STATIC                 | 71.4                                                              | 58                                                   | 62   | integrated             | 3.03                                                   | 5687                                           | 1264                                          | 2800                                       | 1.013               |
| 4045-EC-05 | 76.30                              | A                            | STATIC                 | 76.3                                                              | 58                                                   | 62   | integrated             | 1.48                                                   | 5112                                           | 705                                           | 1880                                       | 1.007               |
| 4045-EC-06 | 70.05                              | A                            | STATIC                 | 70.0                                                              | 58                                                   | 62   | integrated             | 2.68                                                   | 5761                                           | 1072                                          | 2270                                       | 1.011               |
| 4550-EC-06 | 75.05                              | A                            | STATIC                 | 75.0                                                              | 58                                                   | 62   | integrated             | 2.08                                                   | 6477                                           | 784                                           | 1700                                       | 1.008               |
| 4550-EC-07 | 70.18                              | A                            | STATIC                 | 70.2                                                              | 58                                                   | 62   | integrated             | 3.12                                                   | 6931                                           | 1050                                          | 1950                                       | 1.011               |
| 5056-EC-07 | 68.69                              | A                            | STATIC                 | 68.7                                                              | 58                                                   | 62   | integrated             | 3.31                                                   | 8817                                           | 861                                           | 1600                                       | 1.009               |
| 5663-EC-07 | 74.65                              | A                            | STATIC                 | 74.6                                                              | 58                                                   | 62   | integrated             | 2.18                                                   | 9250                                           | 575                                           | 1180                                       | 1.006               |
| 5663-EC-08 | 73.69                              | A                            | STATIC                 | 73.7                                                              | 58                                                   | 62   | integrated             | 3.55                                                   | 11675                                          | 754                                           | 1380                                       | 1.008               |

# RLE E1-/E3-/E6-2528/-5663-EC

THE EVOLUTION  
CONTINUES.  
**RLE<sup>EVO</sup>**

## Specification



### Plug fan with direct drive RLE Evo

Complete assembly module with highest system efficiency, specifically developed and optimized for use without a spiral casing.

Newly developed high performance impeller with optimized shape and highest efficiency, comprising six backward curved hollow section true aerofoil blades with real turbulence profile and rounded, inclined blade leading edges, from impeller shroud to backplate, for optimal impact over the entire width of the blade.

Co-rotating radial diffuser with optimized exit curving on the cover disc to enhance efficiency.

Impeller made of high tensile sheet steel in an automated manufacturing process, robotic welding, degreased, iron phosphated and coated with a high quality epoxy-polyester mixed powder, fitted to the rotor of the integrated motor. Protection IP54, statically and dynamically balanced in accordance with DIN ISO 1940.

System inlet cone made of galvanized sheet steel for optimal inflow to the impeller.

Brushless DC external rotor motor with integrated control unit, stepless speed controlled.

Equipped on inlet side with connection possibility for quadratic supports (RLE E6).

Equipped with volume flow measuring device IMV as standard.

### Variants (at choice)

- **RLE E1** – Motor impeller with inlet cone lose, for installation horizontally or vertically
- **RLE E3** – Motor impeller with support frame and inlet cone as a compact module for installation horizontally or vertically
- **RLE E6** – Motor impeller with support frame and inlet cone on a base frame as a compact module for installation horizontally

## Fan Data

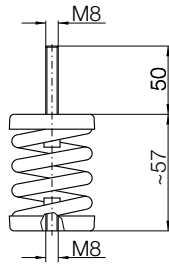
| Fan type                       | RLE         |  |                   |
|--------------------------------|-------------|--|-------------------|
| Volume flow                    | $q_V$       |  | m <sup>3</sup> /h |
| Fan static pressure            | $p_{sF}$    |  | Pa                |
| Air density at inlet           | $\rho_1$    |  | kg/m <sup>3</sup> |
| Media temperature              | t           |  | °C                |
| Fan power                      | $P_a$       |  | kW                |
| Efficiency                     | $\eta_{se}$ |  | Hz                |
| speed                          | N           |  | 1/min             |
| Frequency                      | f           |  | Hz                |
| Sound power level (A weighted) | $L_{WA}$    |  | dB                |
| Weight                         | m           |  | kg                |

## Fittings / Accessories

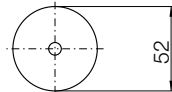
- Mating flange
- Inlet connection (flexible) - RLE E6
- Protection guard for inlet
- Anti vibration mounts (spring diffusors) - RLE E6
- Rubber buffers (for vertical installation) - RLE E3
- Universal control device
- Differential pressure sensor
- Speed Regulator Module (Potentiometer)

# RLE<sup>EVO</sup>

## Anti Vibration Mounts



Fastening for U-profile



AV mounts are designed to prevent noise and vibrations being transmitted through the base of the fan.

AV mounts should be mounted beneath the fan base frame so the weight and spring deflections are evenly distributed. They should not be mounted symmetrically because a counter force is induced into the system by the pressure created by the working fan.

It is difficult for the manufacturer to establish the position of the AV mounts to suit all types of application.

Vibration and noise insulation can also be improved by ensuring that the fan is connected to its external environment by a flexible coupling.

**Spring diffusers** with noise insulation layer and height adjustment, for both vibration and noise insulation at fan speeds above 400 rpm.

Available AV mounts for different fans, see list or proSELECTA II.

The AVM-mounts are supplied with the suitable mounting material for the base frame.

## Assignment

| RLE Evo           | inlet side (2x)       | motor side (2x)       |
|-------------------|-----------------------|-----------------------|
| RLE G6-2225-EC-02 | ZBD SP-7702-A / MSN 2 | ZBD SP-7701-A / MSN 1 |
| RLE E6-2528-EC-02 | ZBD SP-7702-A / MSN 2 | ZBD SP-7701-A / MSN 1 |
| RLE E6-2528-EC-04 | ZBD SP-7703-A / MSN 3 | ZBD SP-7702-A / MSN 2 |
| RLE E6-2831-EC-04 | ZBD SP-7703-A / MSN 3 | ZBD SP-7702-A / MSN 2 |
| RLE E6-3135-EC-04 | ZBD SP-7704-A / MSN 4 | ZBD SP-7702-A / MSN 2 |
| RLE E6-3540-EC-04 | ZBD SP-7704-A / MSN 4 | ZBD SP-7703-A / MSN 3 |
| RLE E6-3540-EC-06 | ZBD SP-7705-A / MSN 5 | ZBD SP-7704-A / MSN 4 |
| RLE E6-4045-EC-05 | ZBD SP-7704-A / MSN 4 | ZBD SP-7704-A / MSN 4 |
| RLE E6-4045-EC-06 | ZBD SP-7705-A / MSN 5 | ZBD SP-7704-A / MSN 4 |
| RLE E6-4550-EC-06 | ZBD SP-7705-A / MSN 5 | ZBD SP-7705-A / MSN 5 |
| RLE E6-4550-EC-07 | ZBD SP-7705-A / MSN 5 | ZBD SP-7705-A / MSN 5 |
| RLE E6-5056-EC-07 | ZBD SP-7706-A / MSN 6 | ZBD SP-7705-A / MSN 5 |
| RLE E6-5663-EC-07 | ZBD SP-7706-A / MSN 6 | ZBD SP-7705-A / MSN 5 |
| RLE E6-5663-EC-08 | ZBD SP-7705-A / MSN 5 | ZBD SP-7707-A / MSN 7 |

## Brushless-DC-Motors



Brushless DC motors are permanent magnet (PM) motors used in the manner of a classical DC motor. They distinguish themselves through highly efficiency and a optimal control and regulation behavior.

The use of required electronics enables the implementation of additional features e.g. pressure regulation, master slave operation.

## Speed variation

The stepless speed control of motors with index „0“ is given through a external potentiometer (accessories) or an external 0...10 volt / PWM signal. Motors with index „M“ must be driven via Modbus® RTU protocol.

## Electric connection

The power supply as well as all control or signal ports are to be connected directly to the motor or the connection cable.

There are no additional shielded cables needed.

## Performance data



The performance curves of the fans are determined at the plenum test rig according to ISO 5801, measured in installation „A“.

The curves show a free discharge pressure rise  $p_{sf}$  as a function of the volume flow rate  $q_v$  in double logarithmic grid distribution. The resistant curves appear as straight lines.

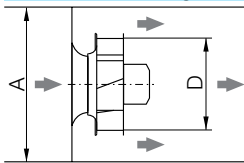
The fan curves are related to a reference density of  $\rho_1 = 1.2 \text{ kg/m}^3$  at the fan intake. The pressure and impeller power are directly proportional to the density  $\rho_1$ .

## Sounds

Sound measurement and analysis are carried out in accordance with DIN 45635-38 "Sound measurement at machines; fans".

In the performance maps the A sound power level  $L_{WA5}$  is stated as emission parameter for the inlet side.

## Correction of design for installation in an enclosure



Installing the fan in a casing may result in a reduced flow rate and pressure increase relative to the information in the performance map which is determined freely discharging in accordance with the prescribed standards.

The pressure loss can be calculated as a function of the size of the casing with the loss coefficient  $\zeta$  for the installed casing from the following diagram. The values in the diagram apply when the box sections are quadratic and the impeller is laid out symmetrically (inflow and outflow according to the diagram).

If casings with rectangular sections are used the following approximate values can be used for box size A:

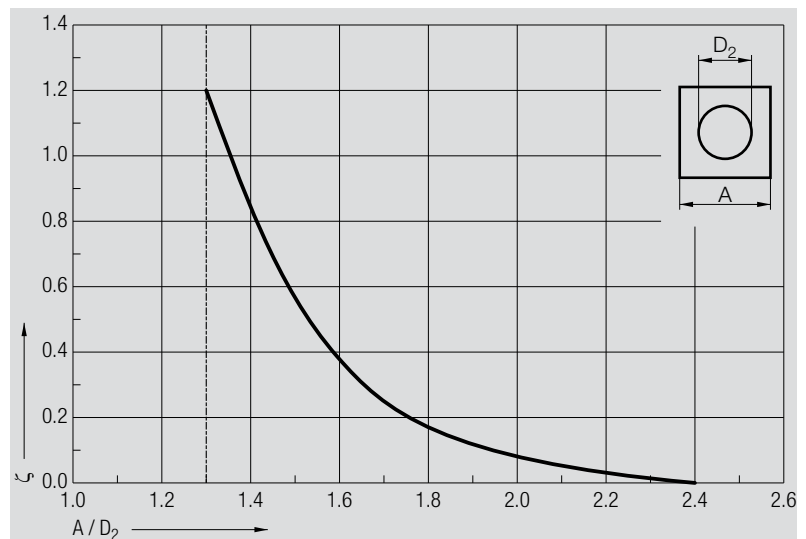
$\zeta$  Loss coefficient for casing installation  
A Inside casing width or length  
 $D_2$  Throat plate diameter

► Max. side length  $B_{\max}$  / min. side length  $B_{\min} \leq 1.3$ :

$$A = \sqrt{B_{\max} \cdot B_{\min}}$$

► Max. side length  $B_{\max}$  / min. side length  $B_{\min} > 1.3$ :

$$A = 1.14 \cdot B_{\min}$$



If the impeller is laid out asymmetrically, the loss coefficients are up to 20 % higher. A minimum distance of the impeller to the surrounding wall of  $0.15 \cdot D_2$  must be observed.

$p_v$  Pressure loss in Pa  
 $\zeta$  Loss coefficient for casing installation  
 $\rho$  Reference density of conveyed air (usually:  $1.2 \text{ kg/m}^3$ )  
 $q_v$  Flow rate in  $\text{m}^3/\text{h}$   
 $D_2$  Throat plate diameter in mm

The pressure loss is calculated with the loss coefficient determined in accordance with the following formula:

$$p_v = 100200 \cdot \zeta \cdot \rho \cdot \frac{q_v^2}{D_2^4}$$

The throat plate diameters for the calculation can be taken from the respective dimension diagram of the fan. The pressure loss is added to the desired pressure increase in the operating point and the fan is selected with the corrected value.

# Simple and reliable fan selection

proSELECTA II is a technical selection program that allows you to configure your own individually designed fan. It provides you with the opportunity to choose from the entire range of fan types and their associated options.



## Simple and reliable selection

The result from proSELECTA II is the provision of all the technical data for your fan, including sound level data, dimension specifications and accessories. Apart from that, as a registered user, your purchase prices are provided. Additionally fully dimensioned drawings in dxf format are available, which can be downloaded and transferred straight into your CAD system.

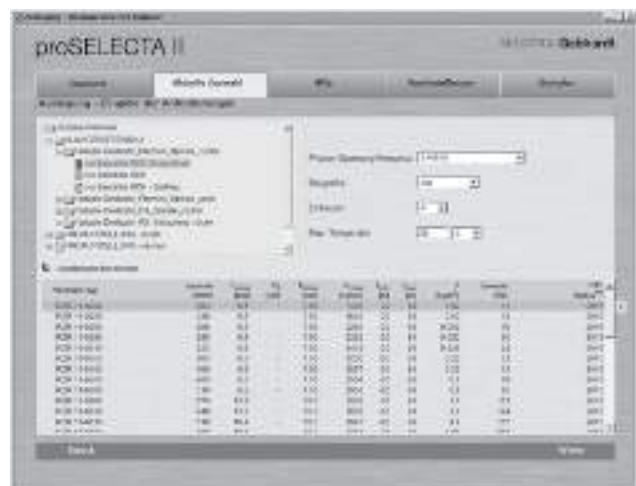
So that you can be sure. Models and options that are technically not permissible, are automatically excluded in proSELECTA II. So there is no chance that you will configure a "wrong" device option.

During the fan selection process, you can choose any of the standardised ATEX options.

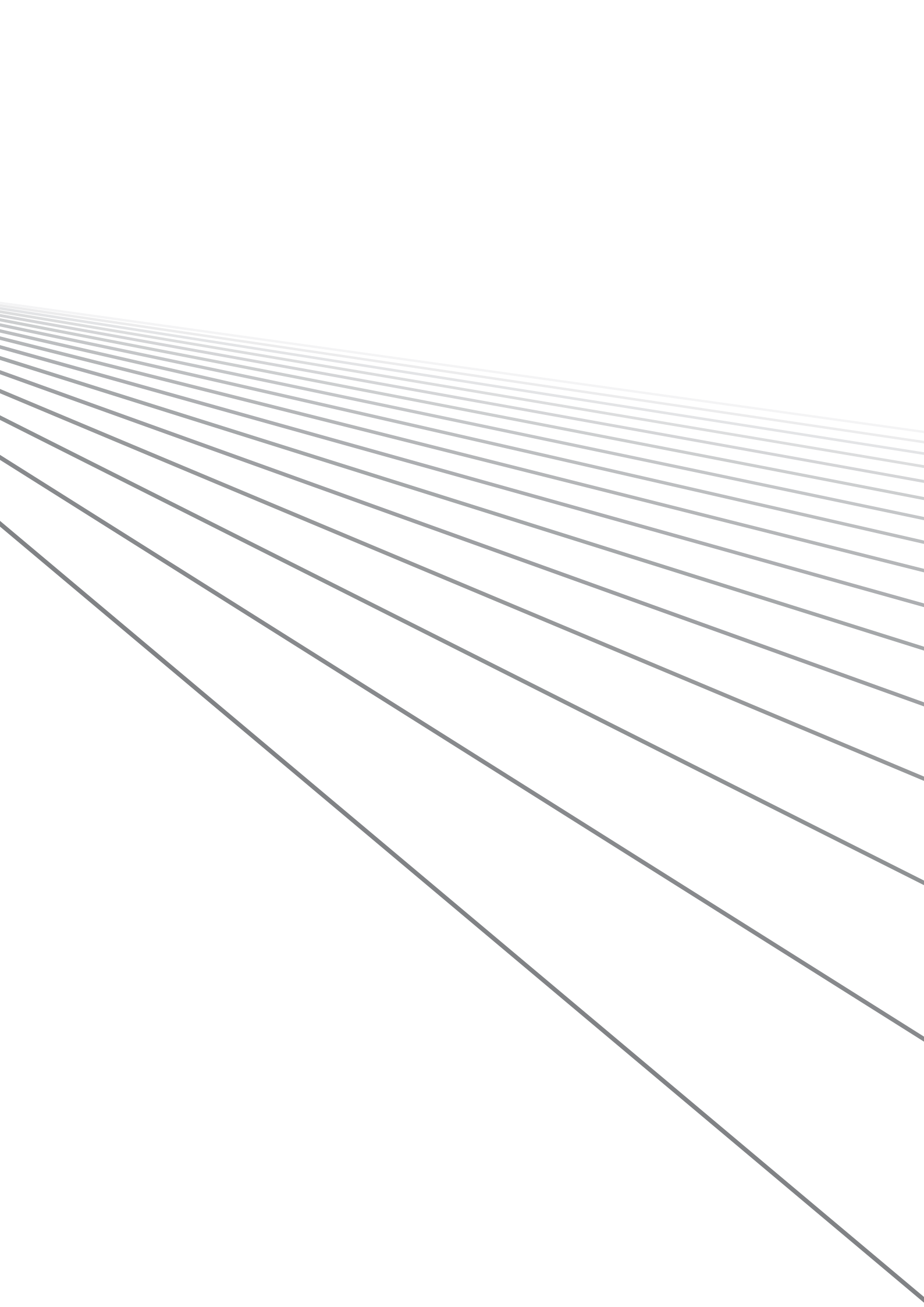
## Free registration and many advantages

You can register as a proSELECTA II user with us, which enables us to offer you faster order processing. What this means for you is:

- ▶ The complete configuration of your fan with its associated system accessories and belt drive layout.
- ▶ The possibility to produce fans that operate via a frequency inverter.
- ▶ The option of saving your own fan configuration on our server.
- ▶ The opportunity to modify your saved configuration, even over the phone to your Nicotra Gebhardt representative.







[illegible]

## This image shows a full page of blank graph paper. The grid consists of small, equal-sized squares formed by thin gray lines. There are 20 columns and 20 rows of squares, creating a total of 400 square units. The grid covers the entire area of the page, leaving no margins or other markings.

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