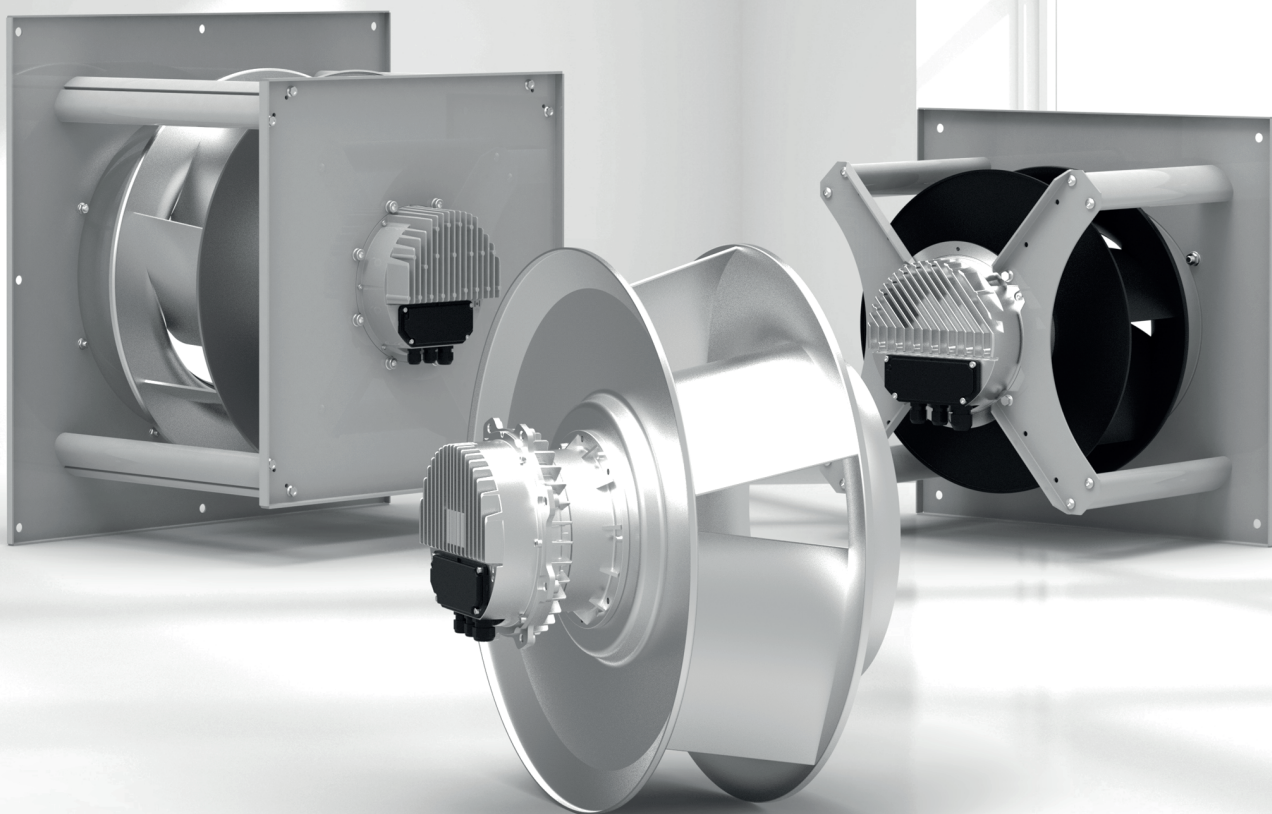


**Freilaufende Räder mit EC-Motoren /  
Free Running Impellers with EC Motors**



## Die Rosenberg-Gruppe

Seit ihrer Gründung 1981 durch Karl Rosenberg hat sich die Rosenberg Ventilatoren GmbH durch die Entwicklung und Produktion von regelbaren Außenläufermotoren, Ventilatoren, Kastenklimaggeräten und Steuerungs- / Regelungstechnik zu einem für Europa bedeutenden Zentrum der Lüftungs- und Klimaindustrie entwickelt. Kundennähe und qualitativ hochwertige Produktion ist unser oberstes Ziel. Der kontinuierliche Informationsfluss und eine gute Zusammenarbeit zwischen Kunden und unseren Mitarbeitern ist uns sehr wichtig, um gemeinsam Produkt- und Qualitätsverbesserungen vorzunehmen. Moderne Prüfstände, computergesteuerte Fertigungsmaschinen und eigenverantwortliche Arbeitsgruppen gehören ebenso wie das Einbinden von Maßnahmen für höhere Qualität und Umweltschutz. Der Exportanteil Rosenbergs liegt derzeit bei rund 60% des Gesamtumsatzes. Im Stammsitz Künzelsau beschäftigt Rosenberg heute 450 Mitarbeiter /-innen, weltweit sind es etwas mehr als 1.700. Weitere Produktionsstätten Rosenbergs sind in Glaubitz (D), Waldmünchen (D), Ungarn, Tschechien, Italien, Frankreich, der Slowakei, Türkei, Mexiko und in China angesiedelt.



**The Rosenberg-Group**

Since its foundation in 1981 by Karl Rosenberg the Rosenberg Ventilatoren GmbH has emerged through its development and production of adjustable external rotor motors, fans, air handling units and control technology to an important center for Europe for the ventilation and air conditioning industry. Customer-oriented and high-quality production is our top priority. The continuous information flow and a good cooperation between customers and our employees is very important to us to ensure quality and product enhancements. Modern performance testing, computer-controlled production machines and self-directed work groups are also included as well as the integration of measures for higher quality and environment protection. The export share of Rosenberg lies currently at 60% of the total turnover. At the headquarters in Künzelsau the employees are 450, worldwide more than 1.700. Further Rosenberg production plants are located in Glaubitz (Germany), Waldmünchen (Germany), Hungary, Czech Republic, Italy, France, Slovakia, Turkey, Mexico and in China.



Die Zertifizierung gemäß DIN EN ISO 9001, die Mitgliedschaft im RLT- Herstellerverband Raumluftechnische Geräte e.V. und der EVIA (European Ventilation Industry Association) weisen unsere fundierten Kenntnisse in der Entwicklung und Produktion lüftungstechnischer Geräte und Anlagen aus.

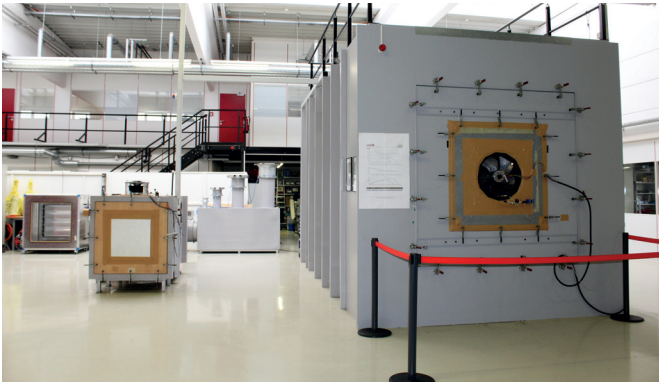


The certification according to DIN EN ISO 9001, the membership in RLT- Herstellerverband Raumluftechnische Geräte e.V. (the German Association of Ventilation and Airconditioning Equipment Manufacturers) and EVIA (European Ventilation Industry Association) show our profound knowledge in the development and production of ventilation equipment and systems.



### Modernste Messverfahren für leistungsstarke Produkte

Moderne Prüfstände gehören ebenso zur Unternehmensstrategie der Rosenberg-Gruppe, wie das Einbinden von Maßnahmen für höhere Qualität und Umweltschutz. Die Auswahl eines Ventilators hängt von mehreren Aspekten ab. Mögliche Baumaße müssen immer im Einklang mit der gewünschten Luftmenge, der erforderlichen Druckerhöhung und dem Geräuschverhalten stehen. Die Ermittlung der einzelnen Kennlinien findet auf modernsten, hauseigenen Prüfständen statt.

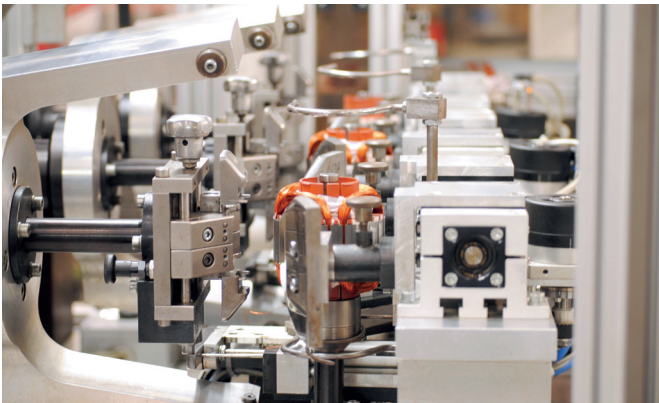


### Geräuschmessung

Die Geräuschmessung findet im reflexionsarmen Raum mit reflektierender Ebene nach dem Hüllflächenverfahren statt. Die Schalleistungen werden nach DIN EN ISO 3744/3745 ermittelt.

### Luftleistungsmessung

Auf zwei normgerecht saugseitigen Kammerprüfständen nach DIN EN ISO 5801 werden mit modernster Meßtechnik unsere Luftleistungskennlinien ermittelt



**Das gesamte Programm an Motoren, Ventilatoren und Kastenklimatechgeräten wird von der Rosenberg-Gruppe in eigenen Produktionsstätten gefertigt.**

Computergesteuerte Fertigungsmaschinen und eigenverantwortliche Arbeitsgruppen sind wichtige Eckpfeiler unserer Serienproduktion.

Seit 1990 fertigen wir eigene Außenläufermotoren für unsere Ventilatoren. In einer modern eingerichteten Fertigung mit automatischen Wickelmaschinen fertigen wir vom Paket bis zum fertig verpackten Ventilator. Im Jahr 2005 folgten die EC-Motoren. Die Statoren und Rotoren kommen aus dem zur Rosenberg Gruppe gehörenden Stanzwerk und der Gießerei in der Slowakei. Sämtliche Vorrichtungen und Sondermaschinen bauen wir im eigenen Werkzeugbau der Rosenberg Gruppe ebenfalls in Künzelsau.



### Latest measurement methods for high-performance products

Modern performance testing belongs also to the corporate strategy of the Rosenberg Group as well as the integration of measurements for higher quality and environment protection. The choice of a fan depends on several factors. Possible dimensions must be compatible with the desired quantity of air, the required pressure increase and the noise behavior. The determinations of the individual characteristic curves were made with modern in-house test bench.

### Noise measuring

The noise measuring takes place in anechoic room with reflecting plane by the enveloping surface method. Sound power is determined according to DIN EN ISO 3744/3745.

### Air performance measurement

Our air performance curves were determined with the most modern measurement technology on two standard suction side chamber testing stand according to DIN EN ISO 5801.

**The entire program of motors, fans and air handling units is manufactured by the Rosenberg Group in its own production sites.**

Computer-controlled machines and self-directed workgroups are important cornerstones for our series production.

Since 1990 we produce our own external rotor motors for our fans. In a modern production facility with automatic winding machines, we manufacture everything from the motor package to the finished fan. In 2005 the EC-motors followed. The stators and rotors come from the belonging Rosenberg Group of Slovakia (diecutting unit and foundry). We built all components and special machines in our own toolmaking of the Rosenberg Group also in Künzelsau.



**Vorteile der EC-Technologie:**

- » sehr hoher Wirkungsgrad, auch in Teillast
- » integrierte Regelung (stufenlos regelbar)
- » sehr einfacher Anschluss
- » Zusatzfunktionen (Druckregelung u.v.m.)
- » geringere Motorbaugröße bei gleicher Leistung
- » geringer Energieverbrauch

Als zukunftsorientiertes Unternehmen übernehmen wir Verantwortung für den bewussten Umgang mit Energie. Ihm kommt eine entscheidende ökologische und ökonomische Bedeutung zu - vor allem in Hinsicht auf den CO<sub>2</sub>-Ausstoß und steigende Energiepreise.

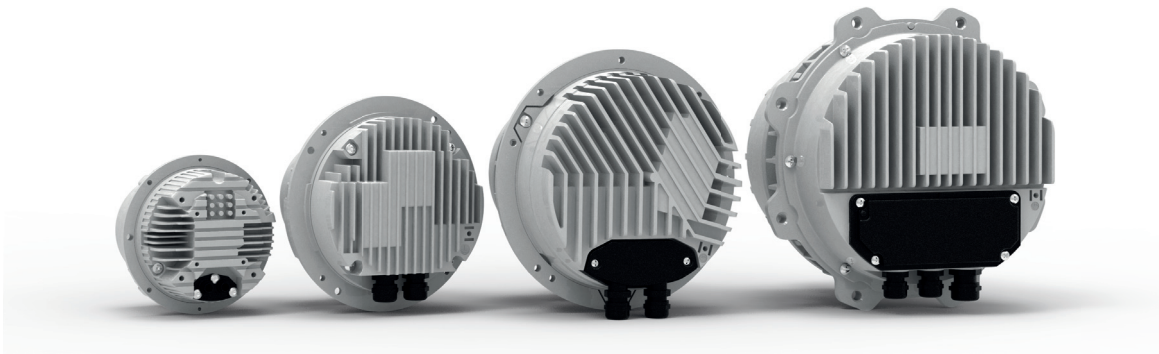
Deshalb arbeiten unsere Ingenieure und Techniker ständig daran, die Energieeffizienz unserer Produkte zu verbessern - mit Erfolg: Unsere Motoren mit moderner EC-Technologie erreichen **Wirkungsgrade über 90%** und sparen bis zu 50% Energie gegenüber herkömmlicher Motortechnik ein. Der niedrige Energieverbrauch trägt dabei nicht nur zur Schonung der Umwelt bei, sondern senkt auch die Betriebskosten unserer Kunden.

**Advantages of the EC Technology:**

- » *Very high efficiency, also in partial load*
- » *Integrated control (step less variable)*
- » *Easy connection*
- » *Additional features (pressure control and much more)*
- » *Lower motor size for the same performance*
- » *Low energy-consumption*

*As future driven-company we assume responsibility for the conscious way of using energy, especially for the ecological and economical importance with regard to the CO<sub>2</sub>-Emission and rising energy prices.*

*Our engineers and technicians work therefore constantly to improve the energy efficiency of our products – with success: Our motors with modern EC Technology reach **efficiency of more than 90%** and save up to 50% energy compared with conventional engine technology. The low energy consumption contributes not only for the environmental protection but also lowers the operating costs of our customers*



Die EC-Technologie ist aber weit mehr als ein reines „Energieeffizienzwunder“. Die EC-Motoren sind wartungsfrei und geräuscharm. Die **integrierte, intelligente Elektronik** ermöglicht eine stufenlose Regelung und weitere Zusatzfunktionen wie z.B. Druck-, Volumenstrom- oder Luftqualitätsregelung. Unsere EC-Produkte erfüllen damit höchste Ansprüche wenn es um **Energieeffizienz, Wirtschaftlichkeit und hohe Luftqualität** geht.

Bei einem **Rosenberg EC-Motor** (EC = elektronisch kommutiert) handelt es sich um einen permanentenerregten Synchronmotor in Außenläuferbauform.

Durch einen Gleichrichter wird die Netzwechselfspannung in der Kommutierungselektronik in eine Gleichspannung gewandelt. Dem Motor wird lageabhängig über einen Wechselrichter die Motorspannung zur Verfügung gestellt (ähnlich dem Prinzip eines Frequenzumrichters). Abweichend zum Frequenzumrichter entscheidet die EC-Kommutierungselektronik in Abhängigkeit von der Lage, der Drehrichtung und der Drehzahlvorgabe wie die Motorphasen im Stator bestromt werden (Kommutierung). Im Rotor erzeugen Permanentmagnete ein magnetisches Feld, welches zur Drehmomenterzeugung benötigt wird. Hiermit ist eine hocheffiziente, geräuscharme und stufenlose Drehzahlsteuerbarkeit möglich. Ein Montageflansch am Rotor wird zur Laufradmontage verwendet. In Abhängigkeit vom Motortyp steht ein Klemmkasten mit Kabelverschraubungen oder ausgeführte Kabel für den einfachen und schnellen Anschluss zur Verfügung.

*The EC Technology is much more than pure “energy efficiency wonder“. The EC Motors are maintenance-free and low-noise. The **integrated, intelligent electronics** enables a variable control and other additional functions like for example pressure-, volume flow- or air quality regulation. Our EC Products comply the very highest aspirations when it comes to **energy efficiency, economy and high air quality.***

*The **Rosenberg EC Motor** (EC = electronically commutated) is a permanent excited synchronous motor in external rotor design.*

*By a rectifier the mains voltage in the commutation electronic is converted in d.c. voltage. The motor voltage is made available for the motor (dependent of position) by an inverter (similar to the principle of the frequency converter). In deviation from the frequency converter the EC-commutation electronic decides depending on the position, the direction of rotation and speed specification how the motor phases are energized in the stator (commutation). Permanent magnet generates in the rotor a magnetic field, which is needed for the torque application. Hereby, a high efficient, low-noise and variable speed control is possible. A mounting flange on the rotor is used for the wheel mounting. Depending on the motor type a terminal box with cable gland or exported cables for the fast and simple connection are available.*

Je nach Anwendungsgebiet ist es möglich weitere Regelfunktionen zu übernehmen (z.B. Druckkonstantregelung, Volumenstromregelung, Temperaturregelung).

Depending on the area of application it is possible to assume further control functions (e.g. Pressure constant control, volume flow control, temperature control).

Die im Vergleich zu herkömmlichen Motoren etwas höheren Investitionskosten für EC-Ventilatoren amortisieren sich meist bereits innerhalb kürzester Betriebszeit durch den niedrigeren Energieverbrauch und den geringeren Installationsaufwand (kein Trafosteuergerät, Frequenzumrichter oder Phasenanschnittsteuergerät notwendig).

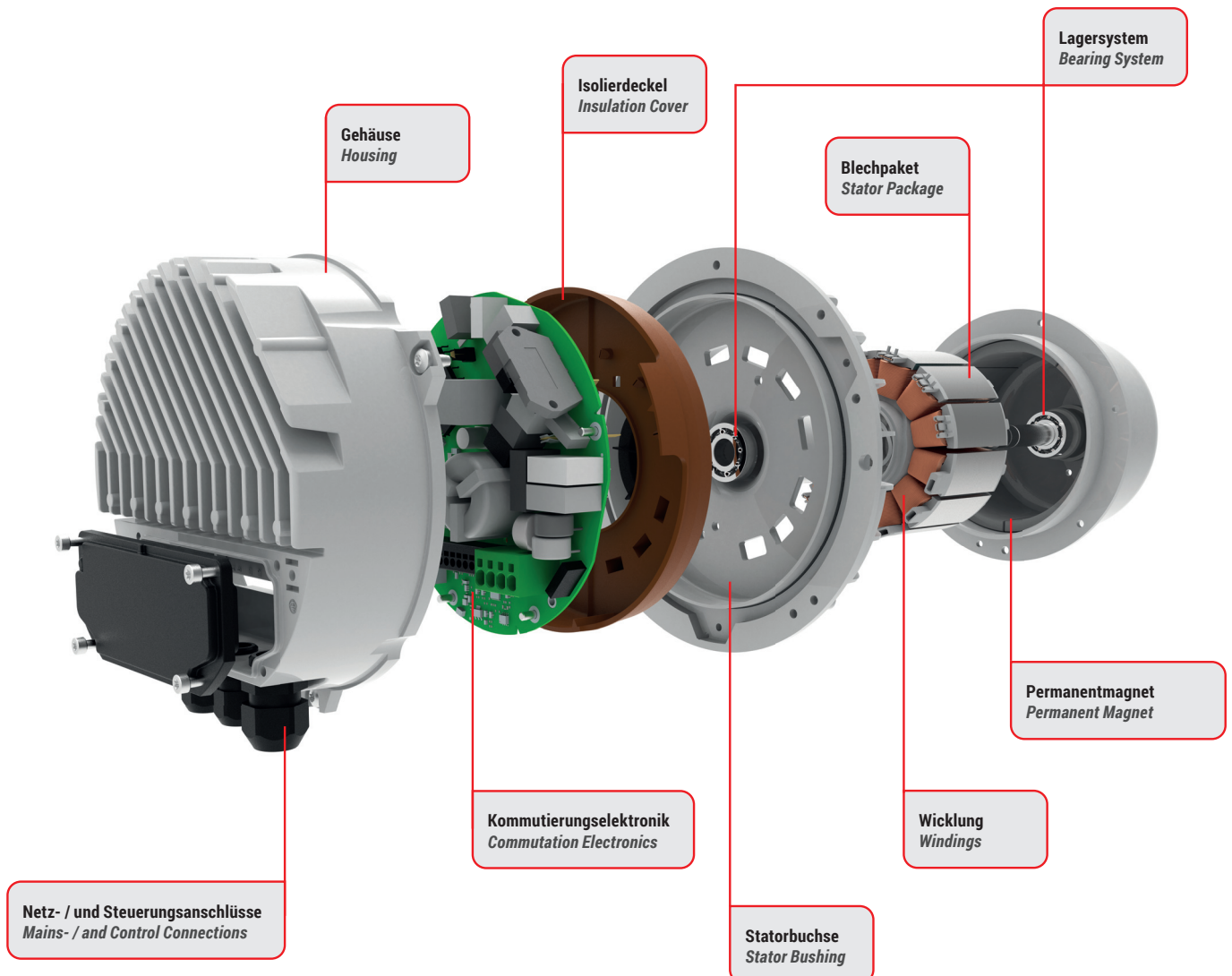
The investment costs for EC Fans in comparison with the conventional motors amortized within short operating time through the low energy consumption and minor installation (no transformer control unit, frequency converter or phase angle control unit is necessary).

In Anlehnung an die Norm EN 60034-30 ist der Wirkungsgrad eines Rosenberg EC-Motors vergleichbar mit IE4 / IE5.

Based on the EN 60034-30 standard, the efficiency of a Rosenberg EC motor is comparable to IE4 / IE5.

Schematischer Aufbau eines EC-Motors:

Schematic Structure of an EC Motor:

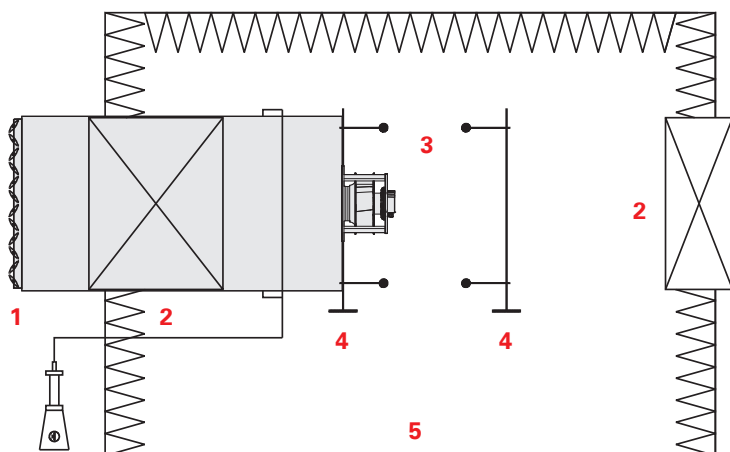


## Geräusche

Die Messungen und deren Darstellung erfolgt nach DIN EN ISO 3744/3745 bzw. ISO 13347-3 gemäß dem dort beschriebenen Hüllflächenverfahren, nach dem über eine quaderförmige Meßfläche mehrere Meßpunkte erfaßt werden. Nachfolgende Abbildung zeigt schematisch das Messsystem.

## Noise Levels

The tests and their performance curves were conducted according to DIN EN ISO 3744/3745 and ISO 13347-3 in accordance with the enveloping surface method, following data collection at several test points over a square measuring area. The following diagram shows the schematics of the measuring system.



- 1 Jalousieklappe / Shutter Door
- 2 Schalldämpfer / Sound Attenuator
- 3 Prüfling / Test Sample
- 4 Messgitter / Measurement Arrangement
- 5 Schallmessraum mit reflektierendem Boden / Sound Chamber with reflecting Floor

In den jeweiligen Kennlinienfeldern ist der A-bewertete Frei-Ansaug-Schalleistungspegel  $L_{W(A)IN}$  nach ISO 3745 angegeben.

In the corresponding characteristic curve, the A-weighted free-inlet sound power level  $L_{W(A)IN}$  according to ISO 3745 is indicated.

Der Frei-Ausblas-Schalleistungspegel  $L_{W(A)OUT}$  kann typenspezifisch berechnet werden (siehe jeweilige Typenseite).

The free-outlet sound power level  $L_{W(A)OUT}$  can be calculated according to the formula on each fan type page.

Der austrittseitig zu erwartenden A-Schalldruckpegel kann nur annähernd ermittelt werden, da die Umgebungseinflüsse zu starken Abweichungen führen können. Als Richtwert für den Schalldruckpegel in 1m Abstand kann man folgende Beziehung zugrunde legen:

The expected sound pressure level on the outlet side can only be approximately determined as the ambient influences can lead to strong deviations. The following formula can be used to calculate the standard value of the sound power level at a distance of 1m:

$$L_{P(A) 1m} \approx L_{W(A)} - 7 \text{ dB}$$

$$L_{P(A) 1m} \approx L_{W(A)} - 7 \text{ dB}$$

Für genauere Berechnungen bei Schallschutzmaßnahmen ist der Schalleistungspegel der Oktavbänder von Bedeutung.

For the exact determination of the sound protection requirement, the sound power level of the octave bands is important.

$$L_{Wokt} = L_{W(A)} + L_{Wrel}$$

$$L_{Wokt} = L_{W(A)} + L_{Wrel}$$

Grundsätzlich ist zu beachten, dass die örtlichen Geräuschwerte unter Umständen stark von den Einbaubedingungen, Reflexionen, der vorhandenen Raumakustik und weiteren Einflussfaktoren beeinflusst werden können.

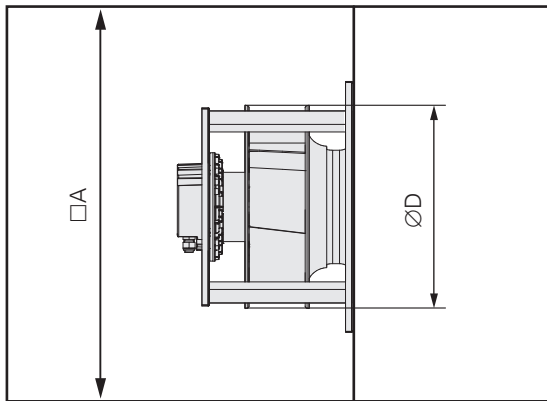
It should be noted that sound levels may be strongly affected by installation conditions, reflections, the acoustics of the room and other influential factors.

**Einbauempfehlung in Gehäuse oder Kastenklimageräte**

Wir empfehlen beim Einbau eines Radialventilators mit freilaufendem Rad in ein Gehäuse, das Einbauverhältnis:

$$\frac{\text{Gehäuseinnenmaß } A}{\text{Laufraudaußendurchmesser } D} \geq 1,5 \text{ einzuhalten}$$

Das folgende Diagramm zeigt die Einbauverluste bei empfohlenem und zu kleinem Einbauverhältnis:



Die Einbauskizze stellt einen GKHM dar. Sinngemäß gilt gleiches auch für alle anderen Modelle dieses Kataloges.

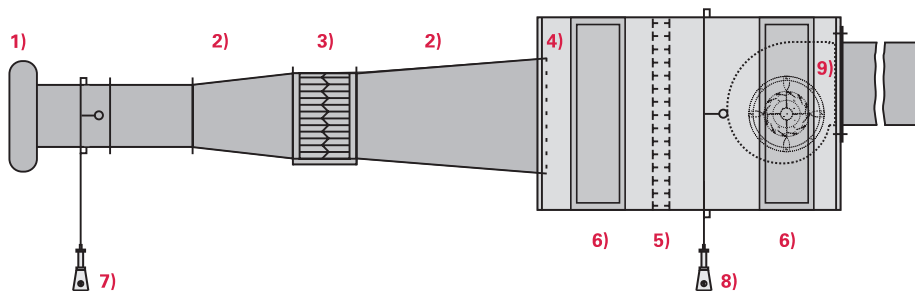
- 1 Kennlinie ohne Gehäuse: 100 % Nennluftleistung
- 2 Kennlinie bei A/D = 1,6 : 98 % Nennluftleistung
- 3 Kennlinie bei A/D = 1,2 : 92 % Nennluftleistung

Saugseitig und druckseitig sollte ein Mindestabstand von 0,5\*D zu angrenzenden Bauteilen eingehalten werden. Damit können Verluste vernachlässigt werden.

**Luftleistungskennlinien**

Die Luftleistungskennlinien wurden auf dem abgebildeten saugseitigen Kammerprüfstand entsprechend DIN EN ISO 5801 aufgenommen. Sie zeigen die Druckerhöhung als Funktion des Volumenstromes und gelten für Luft mit einer Dichte von 1,15 kg/m³ und bei einer Temperatur von t=20°C. Die Kennlinien wurden in Einbauart A (frei saugend, frei ausblasend) aufgenommen. Achtung: Der Leistungsbedarf des Ventilators ändert sich linear zur Dichte des Fördermediums.

**Prüfstand / Test Chamber**



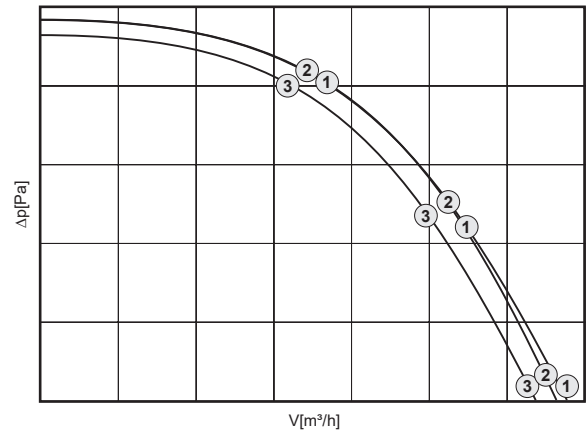
- 1) Einlauf-Meßdüse mit Druckentnahme / Inlet cone with pressure measurement device
- 2) Übergangsstücke, Anschlußstück / Transition parts
- 3) Drosselvorrichtung mit Strömungsgleichrichter / Throttling device with straightener
- 4) Bremsiebe / Screens
- 5) Strömungsgleichrichter / Straightener
- 6) Meßkammer mit Türen / Measuring chamber with shutters
- 7) Wirkdruckanzeige pd mit Druckentnahmestelle / Inlet cone pressure manometer (pd)
- 8) Druckanzeige Dpfa mit Druckentnahmestelle / Pressure manometer Dpfa
- 9) Prüfling / Tested fan

**Installation in Housings or Air Handling Units**

When installing a centrifugal fan with a free-running impeller into a housing, we recommend keeping the installation ratio as follows:

$$\frac{\text{Internal dimension of housing } A}{\text{External dimension of impeller } D} \geq 1,5$$

The following diagram shows installation-based pressure losses when installed as recommended and also when the ratio is too small:



The installation diagram shows a GKHM. The same also applies for all other models of this catalog.

- 1 Performance curve without housing: 100 % nominal air performance
- 2 Performance curve with A/D = 1,6 : 98 % nominal air performance
- 3 Performance curve with A/D = 1,2 : 92 % nominal air performance

On the intake and exhaust side a minimum distance of 0,5\*D to adjoining parts has to be kept. Losses on the pressure side may be disregarded.

**Air Performance Curves**

The air performance curves have been established using the intake test method in the test chamber as shown below according to DIN EN ISO 5801. They show pressure increase as a function of the volume flow and are valid for air with a density of 1,15 kg/m³ with a temperature of t=20°C. Performance curves were recorded in installation type "A" (free flowing intake and exhaust). Important note: Power consumption of fans change linearly proportional to the density of conveyed air/gas.

Typenschlüssel Type Code	G	K	H	M	450	-	C	I	I	.	147	.	6	IF	IE	Gen3+
<b>Motortyp / Type of Motor</b> G = EC-Motor / EC Motor	[Red line connecting G to G]															
<b>Ausführung / Design</b> KH = Freilaufendes Rad mit Außenläufermotor / Free running impeller with external rotor motor	[Red line connecting KH to K and H]															
<b>Bauform / Construction Type</b> R = Motorlaufrad / Motorized Impeller M = Classic Modul / Classic Module C = Slim Modul / Slim Module	[Red line connecting M to M]															
<b>Radnenngröße / Impeller Diameter</b> 450 = 450 mm	[Red line connecting 450 to 450]															
<b>Statornutzahl / Stator lot no.</b> C = 12	[Red line connecting C to C]															
<b>Mechanische Ausführung / Mechanical Design</b> I = Integrierte Leistungselektronik / Integrated Electronics	[Red line connecting I to I and I]															
<b>Radbaureihe / Type of Wheel</b> I = Hochleistungslaufrad mit hohlprofilierten Schaufeln / High efficiency wheel with aerofoil blades	[Red line connecting I to I and I]															
<b>Radbreite in mm / Width of Wheel in mm</b>	[Red line connecting 147 to 147]															
<b>Motorbaugröße / Motor Size</b> 4 = GD84 , 5 = GD112 , 6 = GD150 , 8 = GD220	[Red line connecting 6 to 6]															
<b>Paketlänge / Stack Length</b>	[Red line connecting IF to IF]															
<b>Verbesserter Systemwirkungsgrad / Improved System Efficiency</b>	[Red line connecting IE to IE]															
<b>Motorengeneration / Generation of Motors</b>	[Red line connecting Gen3+ to Gen3+]															

Rosenberg Radialventilatoren mit freilaufendem Rad sind hauptsächlich für den Geräteeinbau konzipiert und kommen vorzugsweise in Klimageräten, Hygienegeräten, Reinraumfiltereinheiten sowie OEM-Anwendungsbereichen zum Einsatz. Die Ventilatoren sind zur Förderung von Luft und sonstigen, nicht aggressiven Gasen oder Dämpfen bestimmt. Auf Anfrage sind weitere Varianten möglich (z.Bsp. spezielle Beschichtungen). Als Antriebsmotoren werden elektronisch kommutierte (EC-) Außenläufermotoren verwendet.

*Rosenberg Centrifugal Fans with free-running impellers were designed for installation in appliances such as air-handling-units, hygienic and clean room filter units, as well as OEM applications. The fans are suitable for handling air and other non-aggressive gases or fumes. More variants are possible on request (for example custom coating). The motors are available as electronically commutated (EC) external rotor motors.*

Sämtliche in diesem Katalog aufgeführten Ventilatoren entsprechen der ErP 2015. Die Ventilatoren wurden nach Genauigkeitsklasse 1 (DIN 24166) gemessen.



All the listed fans in this catalog correspond to the ErP 2015. Fans are measured according to accuracy class 1 (DIN 24166).



## Laufräder (I-Serie)

Laufrad aus Aluminium (AlMg3) mit 5 rückwärts gekrümmten, hohlprofilierten Schaufeln und umlaufendem wirkungsgradoptimierenden Diffusor. Geräuschoptimiertes Design. Volumenstromorientiertes Verhalten. Die Laufräder sind zusammen mit dem jeweils verwendeten Außenläufermotor oder bei Verwendung von Motoren mit ausgeführter Welle mit Laufradnabe entsprechend der Gütestufe G6.3 (bis Baugröße 400) und G2.5 (ab Baugröße 450) nach DIN ISO 1940 statisch und dynamisch gewuchtet. Der Nenndurchmesser entspricht nicht zwangsläufig dem tatsächlichen Außen-durchmesser der Laufräder.

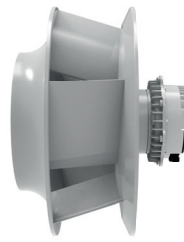
### Drehrichtung

Die Drehrichtung der Laufräder ist serienmäßig rechtsdrehend (gesehen auf die Ansaugseite). Bei falscher Drehrichtung besteht Überlastungsgefahr für den Motor (bei EC Motoren mit integrierter Elektronik nicht möglich). Daher sollte immer bei der Inbetriebnahme die Drehrichtung überprüft werden.

### Einströmdüse

Die Einströmdüsen bestehen aus verzinktem Stahlblech. Sie sind strömungstechnisch optimiert und gewährleisten eine gute Anströmung des Laufrades. Die optimale Eintauchtiefe der Einströmdüse ins Laufrad ist auf der entsprechenden Zeichnung beschrieben. Über die im Lieferumfang enthaltene Ringmessleitung beim GKHM kann eine Volumenstromüberwachung bzw. eine Volumenstromregelung erfolgen.

## Impellers (I-Series)



Impeller made of aluminum (AlMg3) with 5 backward curved, profiled blades and efficiency optimized circumferential diffuser. Sound optimized design. Volumeflow orientated behaviour. The impellers are statically and dynamically balanced with hubs according to quality level G6.3 (up to size 400) and G2.5 (from size 450) DIN ISO 1940. The nominal diameter does not necessarily correspond to the actual outer diameter of the impellers.

### Direction of Rotation

Proper direction of the rotation of the impellers viewed from the inlet side is clockwise. Improper direction of rotation can overload the motor (not possible with EC motors integrated electronics); therefore it is essential to check the direction of rotation before initial operation.

### Inlet Cones

The inlet cones are made of galvanized steel sheet metal. They are fluidic optimized and offer good air flow to the impeller. The optimal immersion depth of the impeller is shown on the corresponding dimensional drawings. Air flow control and monitoring can be done through the circular lead included in the scope of delivery of GKHM.

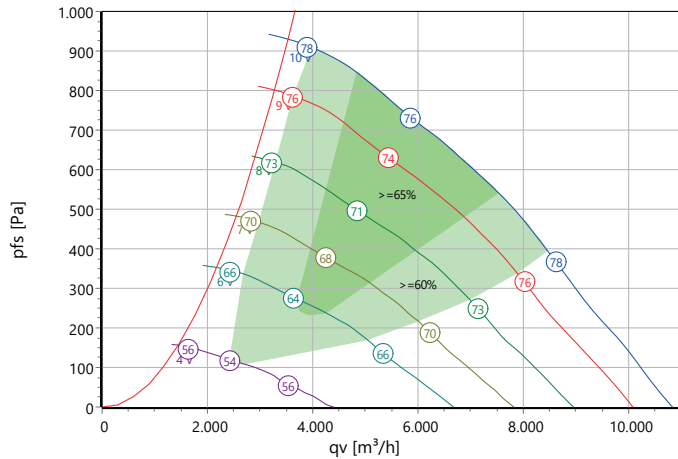
Typ / Type	Art.-Nr. / Art.-No.	
	GKHR ...	GKHM ...
... 450-CII.147.5HF IE Gen3	N86-45700	N88-45700
... 450-CII.147.6FF IE Gen3	N86-45701	N88-45701
... 450-CII.147.6IF IE Gen3+	N86-45702	N88-45702
... 500-CII.164.5HF Gen3	N86-50702	N88-50702
... 500-CII.164.6IF IE Gen3	N86-50700	N88-50700
... 500-CII.164.6NA IE Gen3+	N86-50701	N88-50701
... 500-CII.164.6FF Gen3	N86-50703	N88-50703
... 560-CII.183.6FF Gen3	N86-56702	N88-56702
... 560-CII.183.6IF Gen3	N86-56703	N88-56703
... 560-CII.183.6NA IE Gen3+	N86-56700	N88-56700
... 630-CII.200.6IF Gen3	N86-63701	N88-63701
... 630-CII.200.6NA IE Gen3	N86-63700	N88-63700



Type: **GKHM 450-CII.147.5HF IE Gen3**  
 Module  
 Part no.: N88-45700



**Curve:**



**ErP-Data:**

(EU) Nr. 327/2011 (Lot11)

q <sub>v</sub>	7000	m <sup>3</sup> /h
P <sub>fs</sub>	608	Pa
η <sub>fs</sub>	69,7	%
P <sub>ed</sub>	1,82	kW
n	1815	r/min
N	77	N
v	7,937	m/s

Rosenberg Ventilatoren GmbH certifies that GKHM shown herein is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and AMCA Publication 311 and comply with the requirements of the AMCA Certified Ratings Program.

ρ: 1,15 kg/m<sup>3</sup>; Data @ 400 V

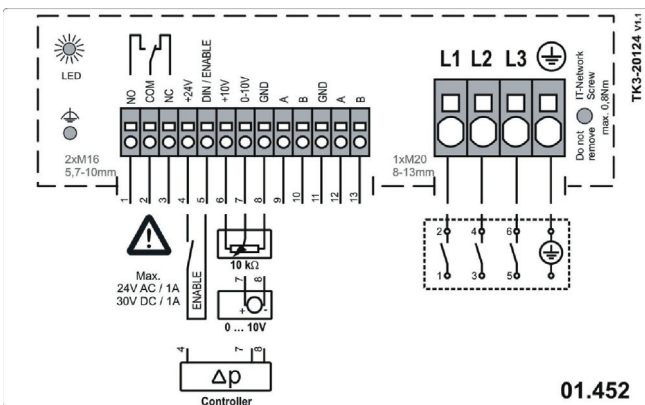
**Nominal Data:**

U [V]	f [Hz]	Data @ [V]	P <sub>ed</sub> [kW]	I <sub>N</sub> [A]	n <sub>N</sub> [r/min]	t <sub>R</sub> [°C]	k <sub>10</sub> [m <sup>2</sup> s/h]	Eff.-Rating	IP	m [kg]
3~380-480	50/60	400	1,85	3,15	1815	-25 .. +40	191	IE5	IP 54	37
		460		2,77						

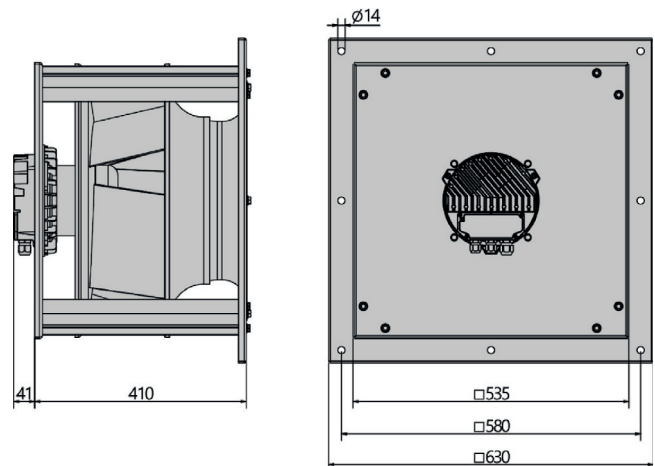
**Sound Data:**

Frequency	Σ	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	Distances	1 m	4 m
LwA(A,in) [dB(A)]		-39	-22	-7	-7	-6	-6	-11	-16	LpA(A,in) [dB(A)]	-7	-17
LwA(A,out) [dB(A)]	6	-39	-24	-6	-6	-7	-7	-11	-19	LpA(A,out) [dB(A)]	-1	-11

**Wiring Diagram:**



**Drawing:**



Attention: Start-up times up to ~ 20 - 60 sec. depending on motor-impeller combination, motor load and number of operation.  
 Please note during project planning (e.g. for condenser units in refrigeration circuits)!

Performance certified is for installation type A – free inlet, free outlet.  
 Performance ratings do not include the effects of appurtenances (accessories).

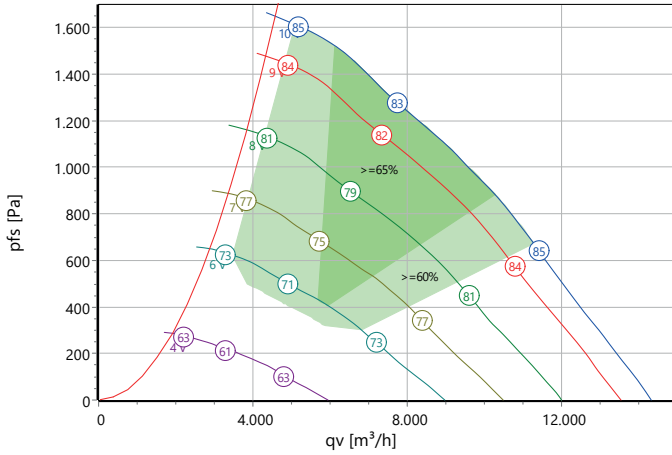
The A-weighted sound power ratings shown have been calculated per AMCA Standard 301. Values shown are for inlet Lw<sub>iA</sub> sound power levels for installation type A: free inlet, free outlet. The dBA levels are not licensed by AMCA International.



Type: **GKH M 450-CII.147.6FF IE Gen3**  
Module  
Part no.: N88-45701



**Curve:**



**ErP-Data:**

(EU) Nr. 327/2011 (Lot11)

q <sub>v</sub>	9298	m <sup>3</sup> /h
P <sub>fs</sub>	1049	Pa
η <sub>fs</sub>	69,3	%
P <sub>ed</sub>	4,11	kW
n	2400	r/min
N	73	N
v	10,542	m/s

Rosenberg Ventilatoren GmbH certifies that GKH M herein is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and AMCA Publication 311 and comply with the requirements of the AMCA Certified Ratings Program.

ρ: 1,15 kg/m<sup>3</sup>; Data @ 400 V

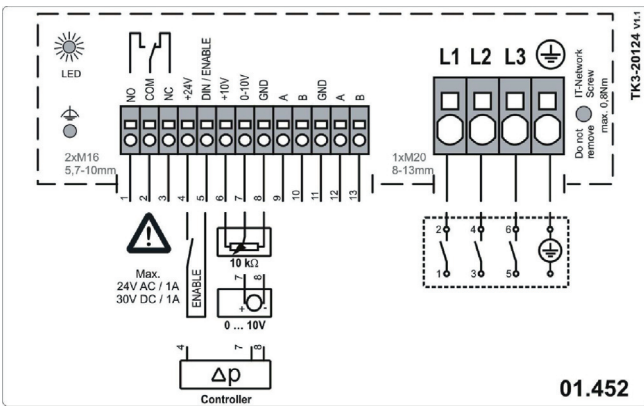
**Nominal Data:**

U [V]	f [Hz]	Data @ [V]	P <sub>ed</sub> [kW]	I <sub>n</sub> [A]	n <sub>n</sub> [r/min]	t <sub>r</sub> [°C]	k <sub>10</sub> [m <sup>2</sup> /h]	Eff.-Rating	IP	m [kg]
3~380-480	50/60	400	4,22	6,7	2400	-25 .. +40	191	IE5	IP 54	38
		460		5,7						

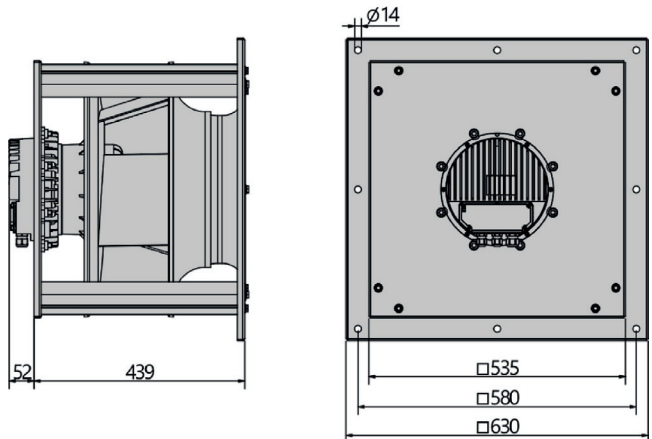
**Sound Data:**

Frequency	Σ	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	Distances	1 m	4 m
LwA(A,in) [dB(A)]		-39	-22	-7	-7	-6	-6	-11	-16	LpA(A,in) [dB(A)]	-7	-17
LwA(A,out) [dB(A)]	6	-39	-24	-6	-6	-7	-7	-11	-19	LpA(A,out) [dB(A)]	-1	-11

**Wiring Diagram:**



**Drawing:**



Attention: Start-up times up to ~ 20 - 60 sec. depending on motor-impeller combination, motor load and number of operation.  
Please note during project planning (e.g. for condenser units in refrigeration circuits)!

Performance certified is for installation type A – free inlet, free outlet.  
Performance ratings do not include the effects of appurtenances (accessories).

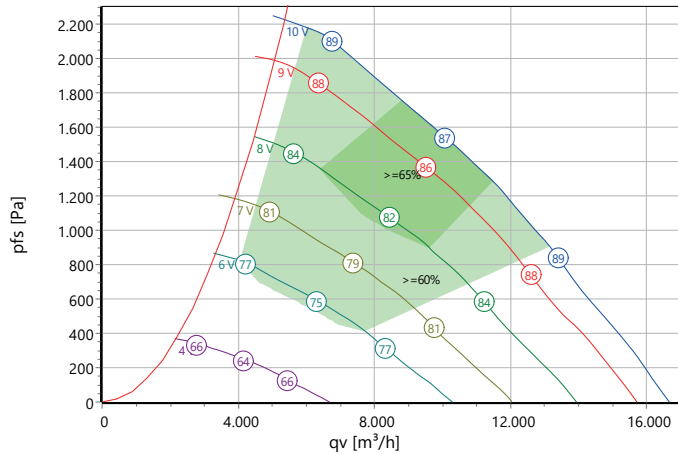
The A-weighted sound power ratings shown have been calculated per AMCA Standard 301. Values shown are for inlet LwA sound power levels for installation type A: free inlet, free outlet. The dBA levels are not licensed by AMCA International.



Type: **GKHM 450-CII.147.6IF IE Gen3+**  
 Module  
 Part no.: N88-45702



**Curve:**



**ErP-Data:**

(EU) Nr. 327/2011 (Lot11)

q <sub>v</sub>	10177	m <sup>3</sup> /h
P <sub>fs</sub>	1521	Pa
η <sub>fs</sub>	68,3	%
P <sub>ed</sub>	6,61	kW
n	2800	r/min
N	70	N
v	11,539	m/s

Rosenberg Ventilatoren GmbH certifies that GKHM shown herein is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and AMCA Publication 311 and comply with the requirements of the AMCA Certified Ratings Program.

ρ: 1,15 kg/m<sup>3</sup>; Data @ 400 V

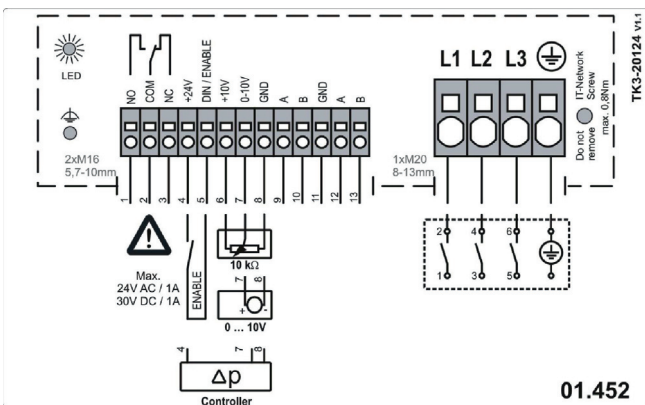
**Nominal Data:**

U [V]	f [Hz]	Data @ [V]	P <sub>ed</sub> [kW]	I <sub>N</sub> [A]	n [r/min]	t <sub>r</sub> [°C]	k <sub>10</sub> [m <sup>2</sup> s/h]	Eff.-Rating	IP	m [kg]
3~380-480	50/60	400	6,7	10,3	2800	-25 .. +40	191	IE5	IP 54	43
		460		9						

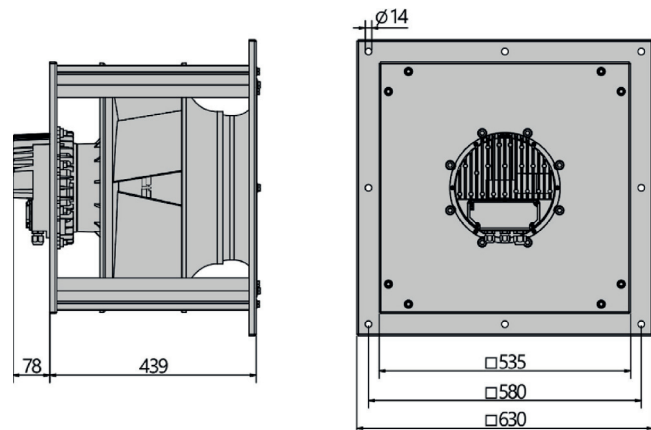
**Sound Data:**

Frequency	Σ	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	Distances	1 m	4 m
LwA(A,in) [dB(A)]		-39	-29	-7	-7	-7	-8	-8	-11	LpA(A,in) [dB(A)]	-7	-17
LwA(A,out) [dB(A)]	6	-33	-29	-6	-6	-6	-9	-10	-16	LpA(A,out) [dB(A)]	-1	-11

**Wiring Diagram:**



**Drawing:**



Over 8V setpoint complies with IEC 60034-30-2 minimum requirements for IE4.  
 Attention: Start-up times up to ~ 20 - 60 sec. depending on motor-impeller combination, motor load and number of operation.  
 Please note during project planning (e.g. for condenser units in refrigeration circuits)!

Performance certified is for installation type A – free inlet, free outlet.  
 Performance ratings do not include the effects of appurtenances (accessories).

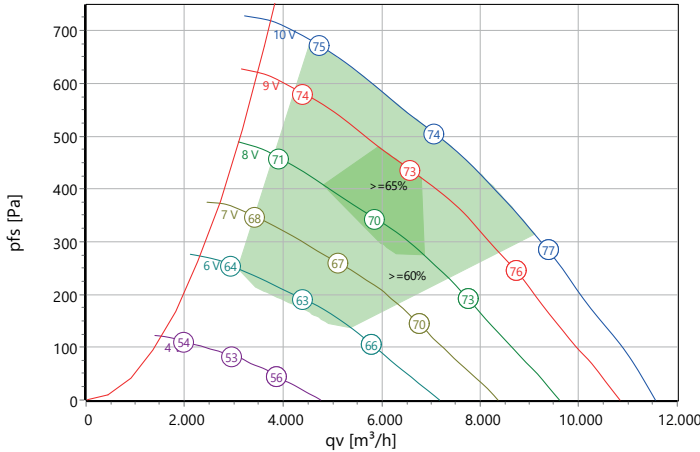
The A-weighted sound power ratings shown have been calculated per AMCA Standard 301. Values shown are for inlet Lw<sub>iA</sub> sound power levels for installation type A: free inlet, free outlet. The dBA levels are not licensed by AMCA International.



Type: **GKHM 500-CII.164.5HF Gen3**  
 Module  
 Part no.: N88-50702



**Curve:**



**ErP-Data:**

(EU) Nr. 327/2011 (Lot11)

q <sub>v</sub>	7189	m <sup>3</sup> /h
p <sub>fs</sub>	497	Pa
η <sub>fs</sub>	68,2	%
P <sub>ed</sub>	1,56	kW
n	1425	r/min
N	77	N
v	6,634	m/s

Rosenberg Ventilatoren GmbH certifies that GKHM shown herein is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and AMCA Publication 311 and comply with the requirements of the AMCA Certified Ratings Program.

ρ: 1,15 kg/m<sup>3</sup>; Data @ 400 V

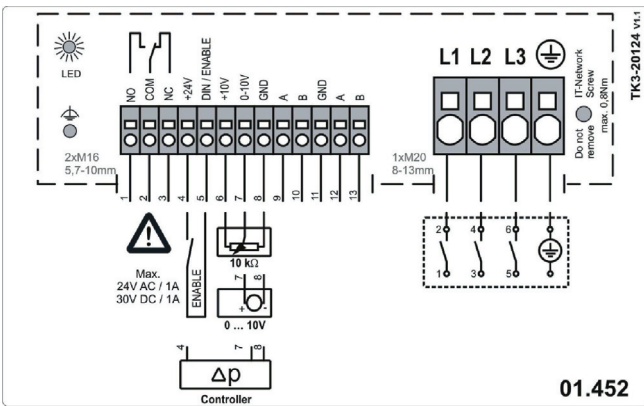
**Nominal Data:**

U [V]	f [Hz]	Data @ [V]	P <sub>ed</sub> [kW]	I <sub>n</sub> [A]	n <sub>n</sub> [r/min]	t <sub>r</sub> [°C]	k <sub>10</sub> [m <sup>2</sup> /s/h]	Eff.-Rating	IP	m [kg]
3~380-480	50/60	400	1,56	2,66	1425	-25 .. +40	232	IE5	IP 54	39,5
		460		2,3						

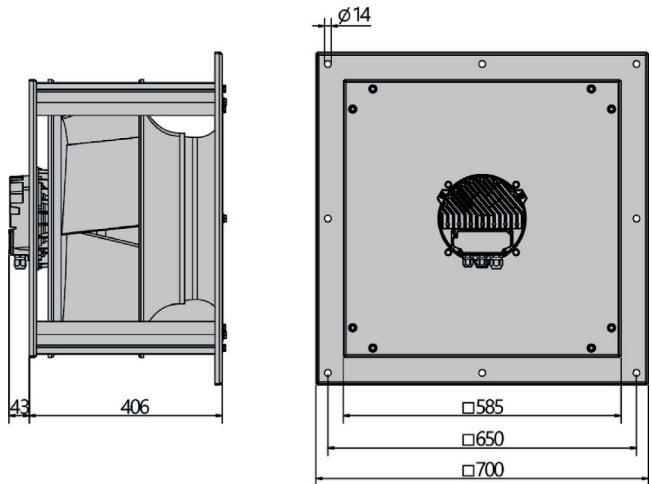
**Sound Data:**

Frequency	Σ	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	Distances	1 m	4 m
LwA(A,in) [dB(A)]		-39	-14	-8	-8	-6	-7	-8	-14	LpA(A,in) [dB(A)]	-7	-17
LwA(A,out) [dB(A)]	6	-38	-13	-9	-6	-6	-7	-11	-14	LpA(A,out) [dB(A)]	-1	-11

**Wiring Diagram:**



**Drawing:**



Attention: Start-up times up to ~ 20 - 60 sec. depending on motor-impeller combination, motor load and number of operation.  
 Please note during project planning (e.g. for condenser units in refrigeration circuits)!

Performance certified is for installation type A – free inlet, free outlet.  
 Performance ratings do not include the effects of appurtenances (accessories).

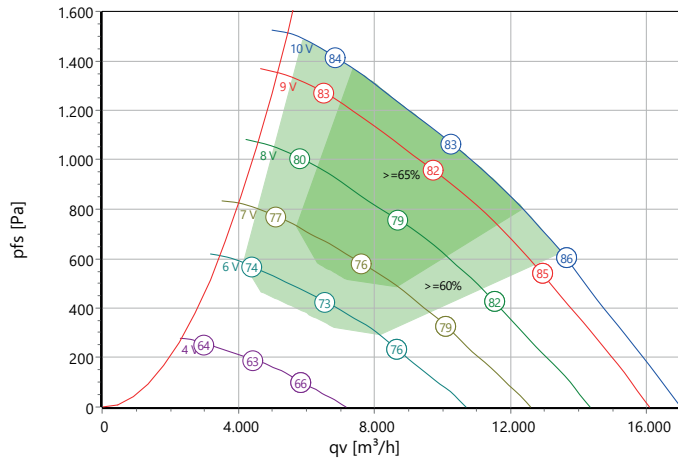
The A-weighted sound power ratings shown have been calculated per AMCA Standard 301. Values shown are for inlet LwA sound power levels for installation type A: free inlet, free outlet. The dBA levels are not licensed by AMCA International.



Type: **GKH M 500-CII.164.6IF IE Gen3**  
 Module  
 Part no.: N88-50700



**Curve:**



**ErP-Data:**

(EU) Nr. 327/2011 (Lot11)		
q <sub>v</sub>	9147	m <sup>3</sup> /h
P <sub>fs</sub>	1185	Pa
η <sub>fs</sub>	70,2	%
P <sub>ed</sub>	4,52	kW
n	2065	r/min
N	74	N
v	8,441	m/s

Rosenberg Ventilatoren GmbH certifies that GKH M shown herein is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and AMCA Publication 311 and comply with the requirements of the AMCA Certified Ratings Program.

ρ: 1,15 kg/m<sup>3</sup>; Data @ 400 V

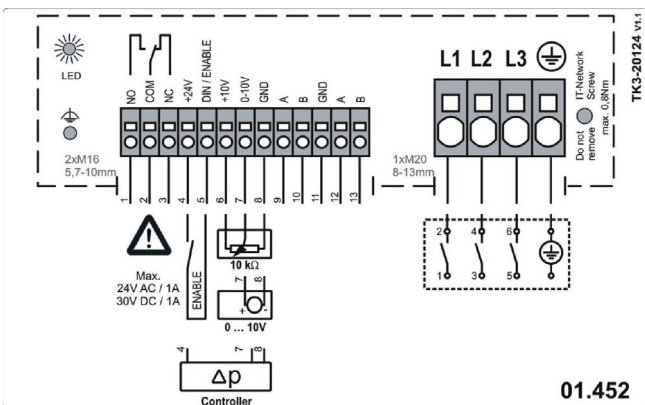
**Nominal Data:**

U [V]	f [Hz]	Data @ [V]	P <sub>ed</sub> [kW]	I <sub>N</sub> [A]	n <sub>N</sub> [r/min]	t <sub>R</sub> [°C]	k <sub>10</sub> [m <sup>2</sup> s/h]	Eff.-Rating	IP	m [kg]
3~380-480	50/60	400	4,55	7	2065	-25 .. +40	232	IE5	IP 54	50
		460		6,2						

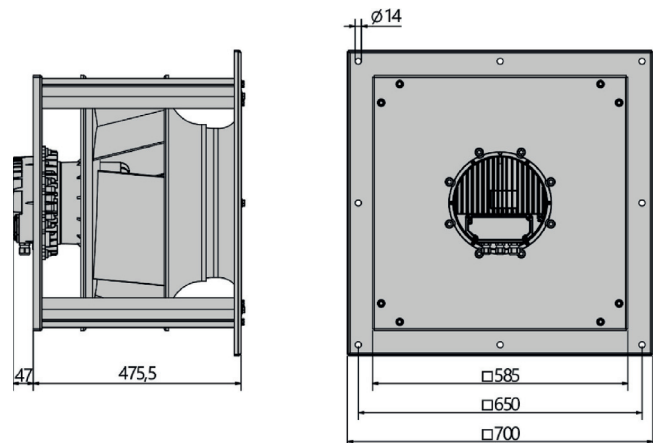
**Sound Data:**

Frequency	Σ	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	Distances	1 m	4 m
LwA(A,in) [dB(A)]		-39	-14	-8	-8	-6	-7	-8	-14	LpA(A,in) [dB(A)]	-7	-17
LwA(A,out) [dB(A)]	6	-38	-13	-9	-6	-6	-7	-11	-14	LpA(A,out) [dB(A)]	-1	-11

**Wiring Diagram:**



**Drawing:**



Attention: Start-up times up to ~ 20 - 60 sec. depending on motor-impeller combination, motor load and number of operation. Please note during project planning (e.g. for condenser units in refrigeration circuits)!

Performance certified is for installation type A – free inlet, free outlet. Performance ratings do not include the effects of appurtenances (accessories).

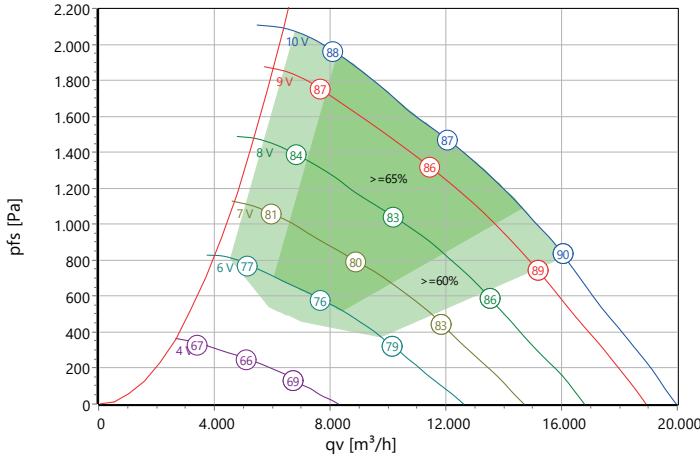
The A-weighted sound power ratings shown have been calculated per AMCA Standard 301. Values shown are for inlet Lw<sub>i</sub>A sound power levels for installation type A: free inlet, free outlet. The dBA levels are not licensed by AMCA International.



Type: **GKHM 500-CII.164.6NA IE Gen3+**  
Module  
Part no.: N88-50701



**Curve:**



$\rho$ : 1,15 kg/m<sup>3</sup>; Data @ 400 V

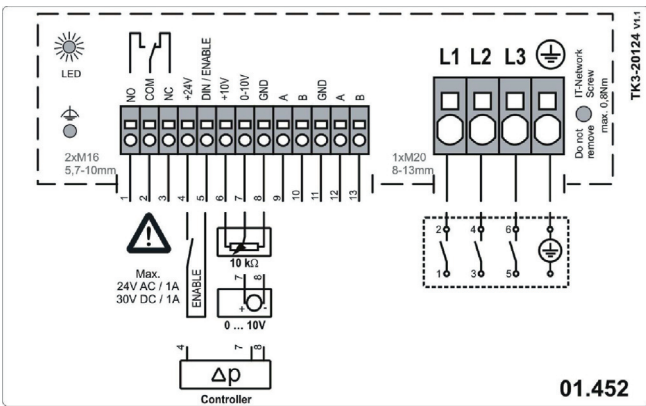
**Nominal Data:**

U [V]	f [Hz]	Data @ [V]	P <sub>ed</sub> [kW]	I <sub>n</sub> [A]	n <sub>n</sub> [r/min]	t <sub>r</sub> [°C]	k <sub>10</sub> [m <sup>2</sup> /h]	Eff.-Rating	IP	m [kg]
3~380-480	50/60	400	7,35	11,3	2425	-25 .. +40	232	IE5	IP 54	56
		460		9,9						

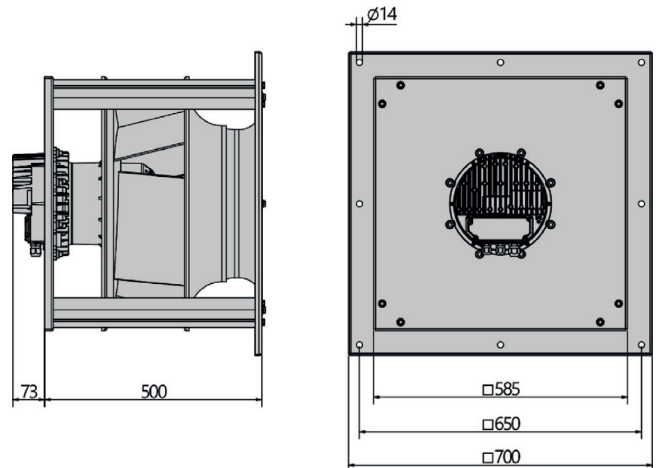
**Sound Data:**

Frequency	Σ	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	Distances	1 m	4 m
LwA(A,in) [dB(A)]		-39	-14	-8	-8	-6	-7	-8	-14	LpA(A,in) [dB(A)]	-7	-17
LwA(A,out) [dB(A)]	6	-38	-13	-9	-6	-6	-7	-11	-14	LpA(A,out) [dB(A)]	-1	-11

**Wiring Diagram:**



**Drawing:**



Over 8,2V setpoint complies with IEC 60034-30-2 minimum requirements for IE4.  
Attention: Start-up times up to ~ 20 - 60 sec. depending on motor-impeller combination, motor load and number of operation.  
Please note during project planning (e.g. for condenser units in refrigeration circuits)!

Performance certified is for installation type A – free inlet, free outlet.  
Performance ratings do not include the effects of appurtenances (accessories).

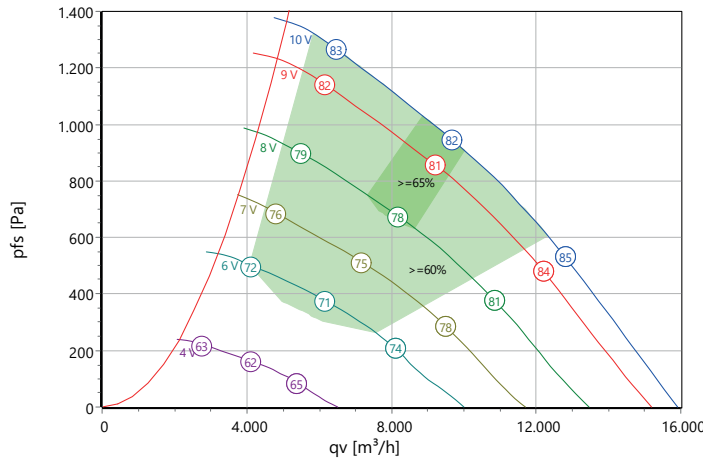
The A-weighted sound power ratings shown have been calculated per AMCA Standard 301. Values shown are for inlet LwA sound power levels for installation type A: free inlet, free outlet. The dBA levels are not licensed by AMCA International.



Type: **GKHM 500-CII.164.6FF Gen3**  
 Module  
 Part no.: N88-50703



**Curve:**



**ErP-Data:**

(EU) Nr. 327/2011 (Lot11)		
q <sub>v</sub>	9678	m <sup>3</sup> /h
P <sub>fs</sub>	945	Pa
η <sub>fs</sub>	67,8	%
P <sub>ed</sub>	3,96	kW
n	1965	r/min
N	72	N
v	8,931	m/s

Rosenberg Ventilatoren GmbH certifies that GKHM shown herein is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and AMCA Publication 311 and comply with the requirements of the AMCA Certified Ratings Program.

ρ: 1,15 kg/m<sup>3</sup>; Data @ 400 V

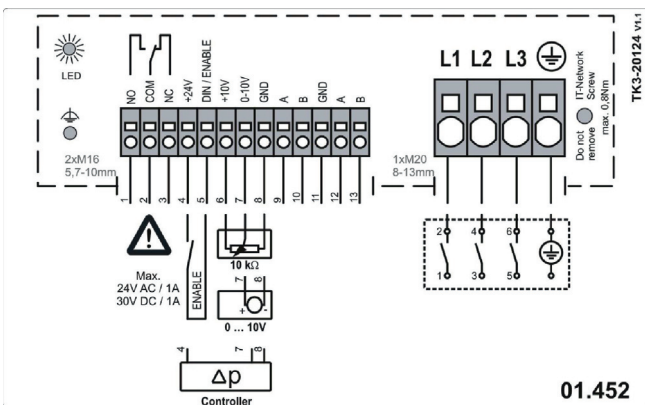
**Nominal Data:**

U [V]	f [Hz]	Data @ [V]	P <sub>ed</sub> [kW]	I <sub>N</sub> [A]	n <sub>N</sub> [r/min]	t <sub>R</sub> [°C]	k <sub>10</sub> [m <sup>2</sup> s/h]	Eff.-Rating	IP	m [kg]
3~380-480	50/60	400	4	6,2	1965	-25 .. +40	232	IE5	IP 54	45
		460		5,4						

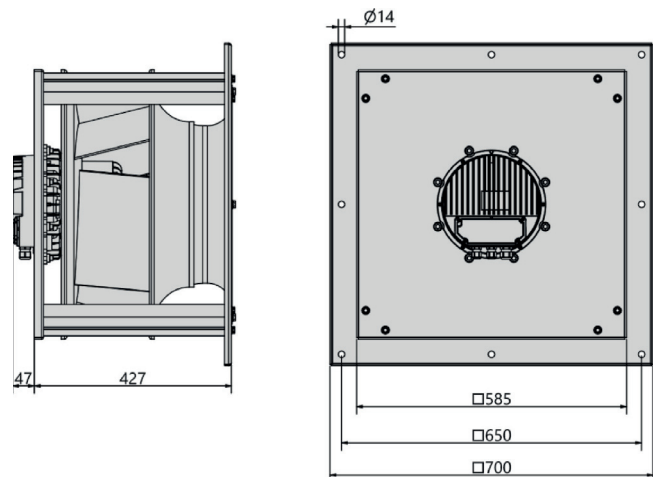
**Sound Data:**

Frequency	Σ	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	Distances		
										1 m	4 m	
LwA(A,in) [dB(A)]		-39	-14	-8	-8	-6	-7	-8	-14	LpA(A,in) [dB(A)]	-7	-17
LwA(A,out) [dB(A)]	6	-38	-13	-9	-6	-6	-7	-11	-14	LpA(A,out) [dB(A)]	-1	-11

**Wiring Diagram:**



**Drawing:**



Attention: Start-up times up to ~ 20 - 60 sec. depending on motor-impeller combination, motor load and number of operation.  
 Please note during project planning (e.g. for condenser units in refrigeration circuits)!

Performance certified is for installation type A – free inlet, free outlet.  
 Performance ratings do not include the effects of appurtenances (accessories).

The A-weighted sound power ratings shown have been calculated per AMCA Standard 301. Values shown are for inlet Lw<sub>i</sub>A sound power levels for installation type A: free inlet, free outlet. The dBA levels are not licensed by AMCA International.

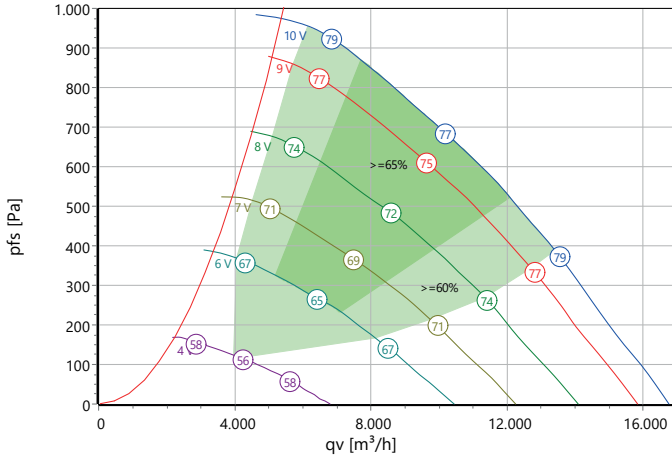




Type: **GKHM 560-CII.183.6FF Gen3**  
Module  
Part no.: N88-56702



**Curve:**



$\rho$ : 1,15 kg/m<sup>3</sup>; Data @ 400 V

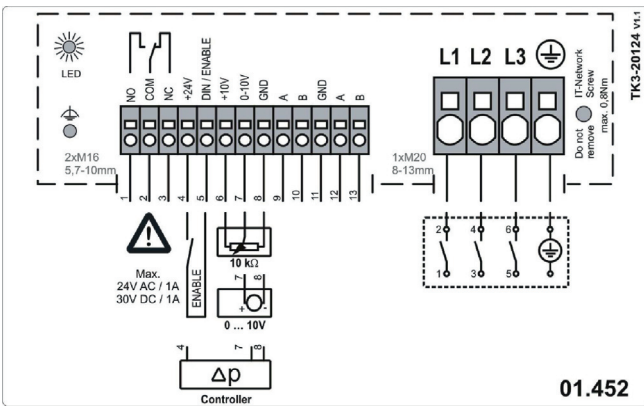
**Nominal Data:**

U [V]	f [Hz]	Data @ [V]	P <sub>ed</sub> [kW]	I <sub>n</sub> [A]	n <sub>n</sub> [r/min]	t <sub>r</sub> [°C]	k <sub>10</sub> [m <sup>2</sup> /h]	Eff.-Rating	IP	m [kg]
3~380-480	50/60	400	3	4,6	1480	-25 .. +40	283	IE5	IP 54	56
		460		4,05						

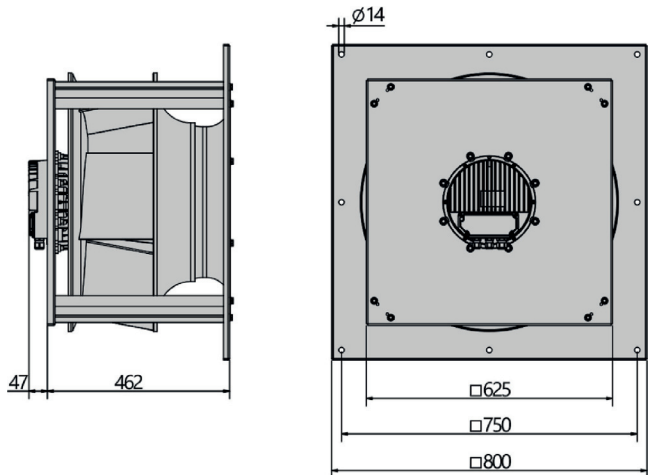
**Sound Data:**

Frequency	Σ	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	Distances	1 m	4 m
LwA(A,in) [dB(A)]		-37	-12	-9	-7	-6	-6	-12	-13	LpA(A,in) [dB(A)]	-7	-17
LwA(A,out) [dB(A)]	6	-36	-12	-11	-8	-5	-6	-10	-15	LpA(A,out) [dB(A)]	-1	-11

**Wiring Diagram:**



**Drawing:**



Attention: Start-up times up to ~ 20 - 60 sec. depending on motor-impeller combination, motor load and number of operation.  
Please note during project planning (e.g. for condenser units in refrigeration circuits)!

Performance certified is for installation type A – free inlet, free outlet.  
Performance ratings do not include the effects of appurtenances (accessories).

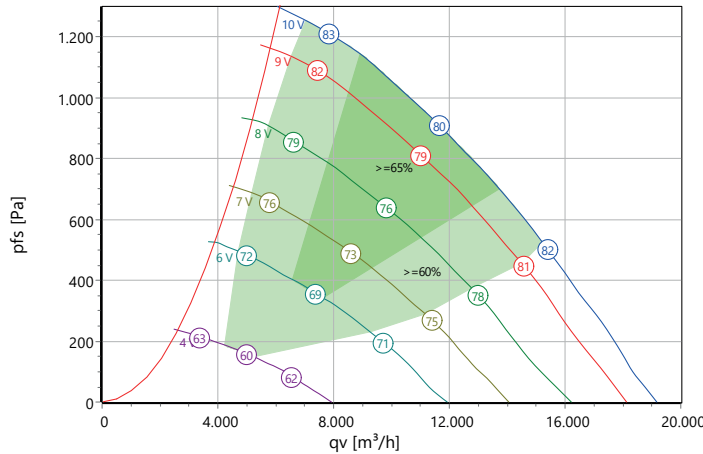
The A-weighted sound power ratings shown have been calculated per AMCA Standard 301. Values shown are for inlet LwA sound power levels for installation type A: free inlet, free outlet. The dBA levels are not licensed by AMCA International.



Type: **GKHM 560-CII.183.6IF Gen3**  
 Module  
 Part no.: N88-56703



**Curve:**



**ErP-Data:**

(EU) Nr. 327/2011 (Lot11)

q <sub>v</sub>	11493	m <sup>3</sup> /h
P <sub>fs</sub>	923	Pa
η <sub>fs</sub>	69,2	%
P <sub>ed</sub>	4,47	kW
n	1705	r/min
N	73	N
v	8,868	m/s

Rosenberg Ventilatoren GmbH certifies that GKHM shown herein is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and AMCA Publication 311 and comply with the requirements of the AMCA Certified Ratings Program.

ρ: 1,15 kg/m<sup>3</sup>; Data @ 400 V

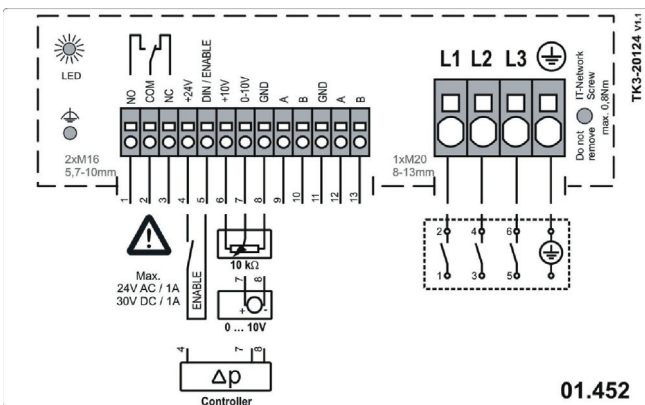
**Nominal Data:**

U [V]	f [Hz]	Data @ [V]	P <sub>ed</sub> [kW]	I <sub>N</sub> [A]	n <sub>N</sub> [r/min]	t <sub>r</sub> [°C]	k <sub>10</sub> [m <sup>2</sup> s/h]	Eff.-Rating	IP	m [kg]
3~380-480	50/60	400	4,5	6,9	1705	-25 .. +40	283	IE5	IP 54	58
		460		6,1						

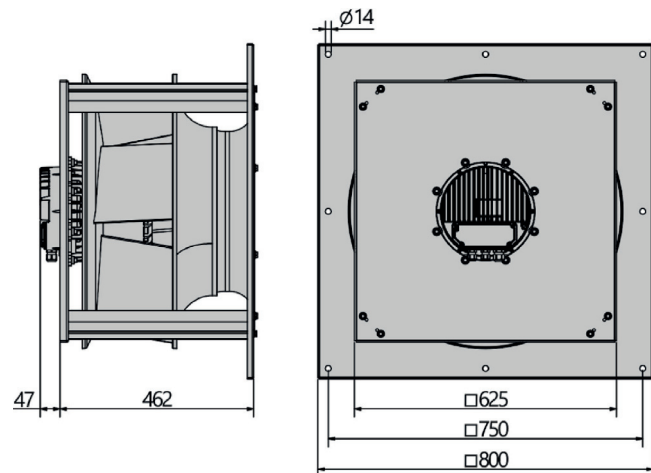
**Sound Data:**

Frequency	Σ	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	Distances	1 m	4 m
LwA(A,in) [dB(A)]		-38	-12	-9	-10	-6	-6	-9	-11	LpA(A,in) [dB(A)]	-7	-17
LwA(A,out) [dB(A)]	6	-36	-13	-10	-8	-6	-6	-9	-12	LpA(A,out) [dB(A)]	-1	-11

**Wiring Diagram:**



**Drawing:**



Attention: Start-up times up to ~ 20 - 60 sec. depending on motor-impeller combination, motor load and number of operation.  
 Please note during project planning (e.g. for condenser units in refrigeration circuits)!

Performance certified is for installation type A – free inlet, free outlet.  
 Performance ratings do not include the effects of appurtenances (accessories).

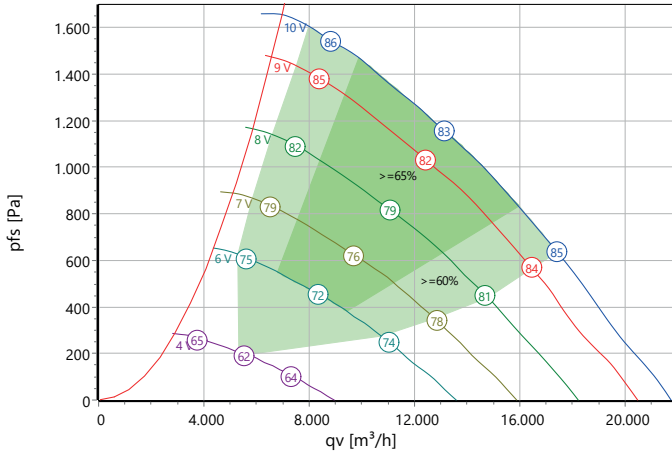
The A-weighted sound power ratings shown have been calculated per AMCA Standard 301. Values shown are for inlet Lw<sub>i</sub>A sound power levels for installation type A: free inlet, free outlet. The dBA levels are not licensed by AMCA International.



Type: **GKHM 560-CII.183.6NA IE Gen3+**  
Module  
Part no.: N88-56700



**Curve:**



Rosenberg Ventilatoren GmbH certifies that GKHM shown herein is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and AMCA Publication 311 and comply with the requirements of the AMCA Certified Ratings Program.

**ErP-Data:**

(EU) Nr. 327/2011 (Lot11)

q <sub>v</sub>	13598	m <sup>3</sup> /h
P <sub>fs</sub>	1113	Pa
η <sub>fs</sub>	70,1	%
P <sub>ed</sub>	6,31	kW
n	1920	r/min
N	72	N
v	10,492	m/s

ρ: 1,15 kg/m<sup>3</sup>; Data @ 400 V

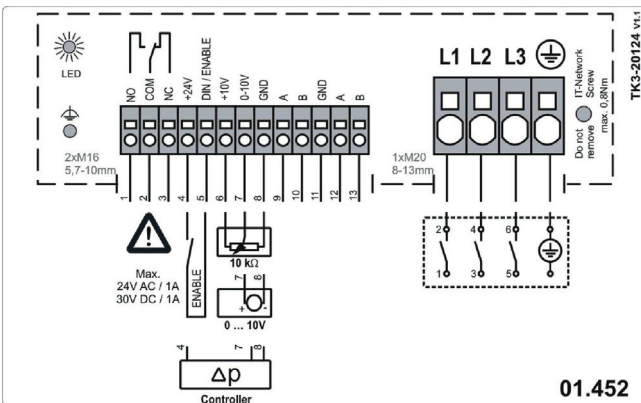
**Nominal Data:**

U [V]	f [Hz]	Data @ [V]	P <sub>ed</sub> [kW]	I <sub>n</sub> [A]	n <sub>n</sub> [r/min]	t <sub>r</sub> [°C]	k <sub>10</sub> [m <sup>2</sup> /h]	Eff.-Rating	IP	m [kg]
3~380-480	50/60	400	6,4	9,8	1920	-25 .. +40	283	IE5	IP 54	64
		460		8,6						

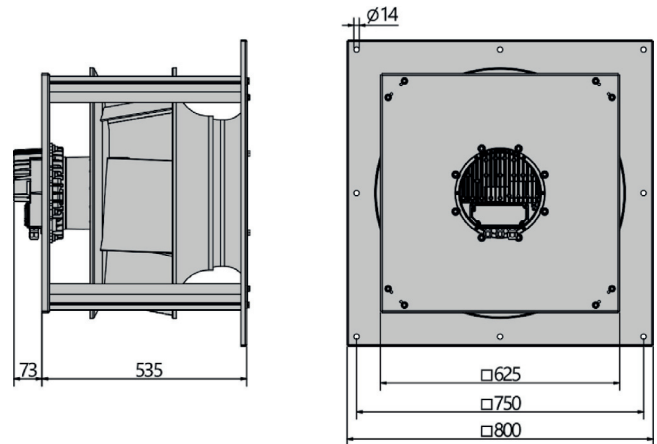
**Sound Data:**

Frequency	Σ	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	Distances	1 m	4 m
LwA(A,in) [dB(A)]		-38	-12	-9	-10	-6	-6	-9	-11	LpA(A,in) [dB(A)]	-7	-17
LwA(A,out) [dB(A)]	6	-36	-13	-10	-8	-6	-6	-9	-12	LpA(A,out) [dB(A)]	-1	-11

**Wiring Diagram:**



**Drawing:**



Over 7.2V setpoint complies with IEC 60034-30-2 minimum requirements for IE4.  
Attention: Start-up times up to ~ 20 - 60 sec. depending on motor-impeller combination, motor load and number of operation.  
Please note during project planning (e.g. for condenser units in refrigeration circuits)!

Performance certified is for installation type A – free inlet, free outlet.  
Performance ratings do not include the effects of appurtenances (accessories).

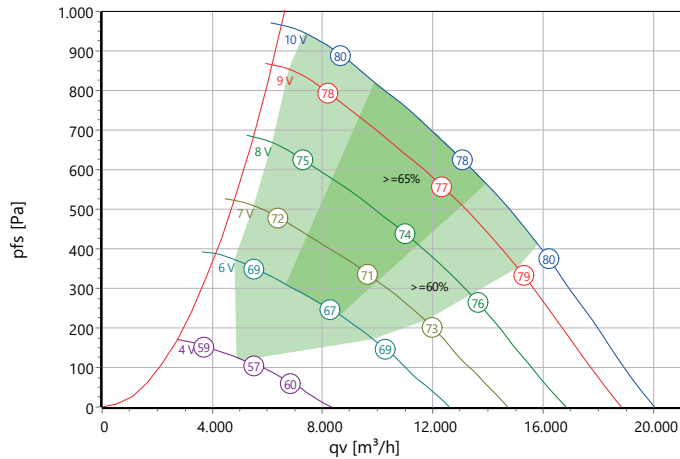
The A-weighted sound power ratings shown have been calculated per AMCA Standard 301. Values shown are for inlet LwA sound power levels for installation type A: free inlet, free outlet. The dBA levels are not licensed by AMCA International.



Type: **GKHM 630-CII.200.61F Gen3**  
 Module  
 Part no.: N88-63701



**Curve:**



**ErP-Data:**

(EU) Nr. 327/2011 (Lot11)

q <sub>v</sub>	11239	m <sup>3</sup> /h
P <sub>fs</sub>	744	Pa
η <sub>fs</sub>	68,8	%
P <sub>ed</sub>	3,55	kW
n	1380	r/min
N	74	N
v	6,938	m/s

Rosenberg Ventilatoren GmbH certifies that GKHM shown herein is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and AMCA Publication 311 and comply with the requirements of the AMCA Certified Ratings Program.

ρ: 1,15 kg/m<sup>3</sup>; Data @ 400 V

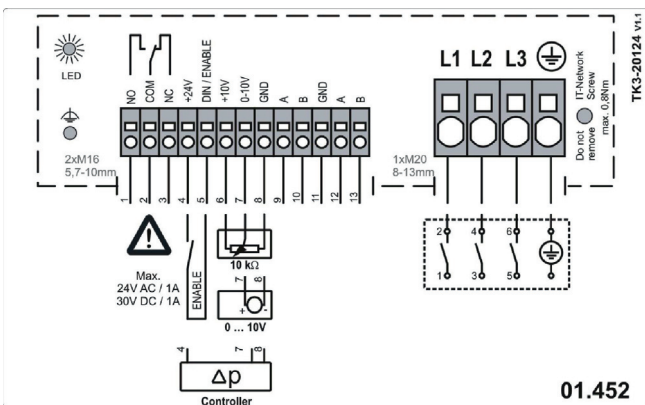
**Nominal Data:**

U [V]	f [Hz]	Data @ [V]	P <sub>ed</sub> [kW]	I <sub>N</sub> [A]	n <sub>N</sub> [r/min]	t <sub>r</sub> [°C]	k <sub>10</sub> [m <sup>2</sup> s/h]	Eff.-Rating	IP	m [kg]
3~380-480	50/60	400	3,55	5,5	1380	-25 .. +40	354	IE5	IP 54	66
		460		4,8						

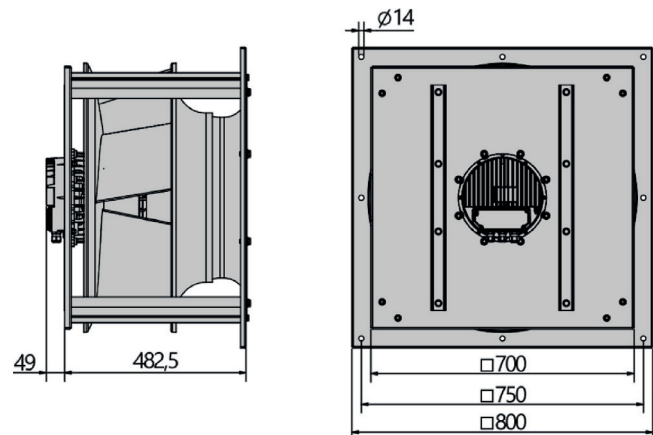
**Sound Data:**

Frequency	Σ	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	Distances	1 m	4 m
LwA(A,in) [dB(A)]		-37	-10	-8	-8	-7	-7	-9	-13	LpA(A,in) [dB(A)]	-7	-17
LwA(A,out) [dB(A)]	6	-36	-10	-9	-7	-7	-7	-9	-13	LpA(A,out) [dB(A)]	-1	-11

**Wiring Diagram:**



**Drawing:**



Attention: Start-up times up to ~ 20 - 60 sec. depending on motor-impeller combination, motor load and number of operation.  
 Please note during project planning (e.g. for condenser units in refrigeration circuits)!

Performance certified is for installation type A – free inlet, free outlet.  
 Performance ratings do not include the effects of appurtenances (accessories).

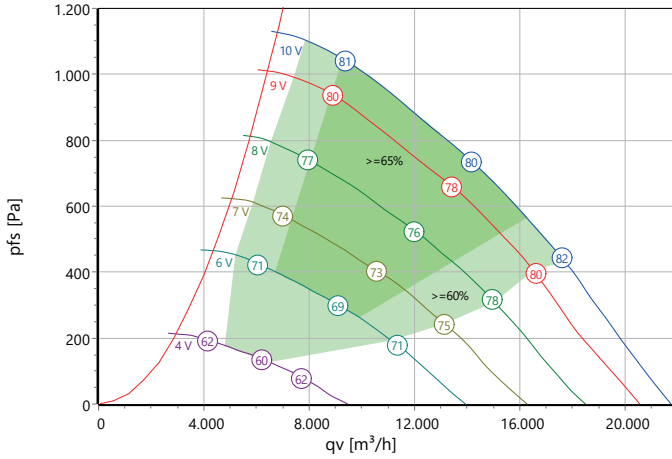
The A-weighted sound power ratings shown have been calculated per AMCA Standard 301. Values shown are for inlet Lw<sub>i</sub>A sound power levels for installation type A: free inlet, free outlet. The dBA levels are not licensed by AMCA International.



Type: **GKHM 630-CII.200.6NA IE Gen3**  
Module  
Part no.: N88-63700



**Curve:**



$\rho$ : 1,15 kg/m<sup>3</sup>; Data @ 400 V

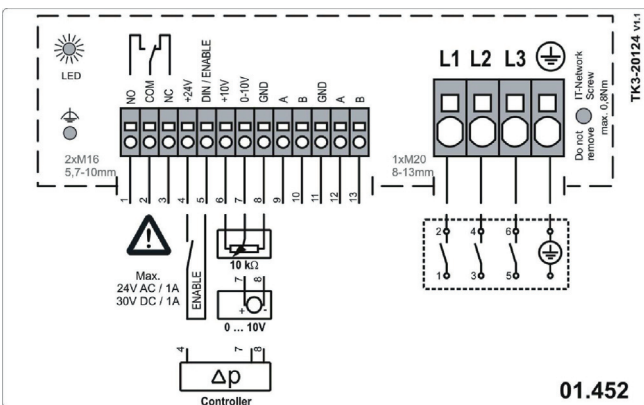
**Nominal Data:**

U [V]	f [Hz]	Data @ [V]	P <sub>ed</sub> [kW]	I <sub>n</sub> [A]	n <sub>n</sub> [r/min]	t <sub>r</sub> [°C]	k <sub>10</sub> [m <sup>2</sup> /h]	Eff.-Rating	IP	m [kg]
3~380-480	50/60	400	4,4	6,7	1475	-25 .. +40	354	IE5	IP 54	73
		460		5,9						

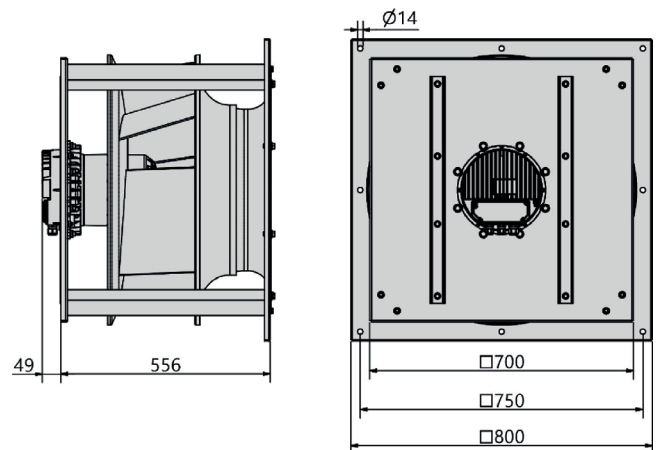
**Sound Data:**

Frequency	Σ	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	Distances	1 m	4 m
LwA(A,in) [dB(A)]		-37	-10	-8	-8	-7	-7	-9	-13	LpA(A,in) [dB(A)]	-7	-17
LwA(A,out) [dB(A)]	6	-36	-10	-9	-7	-7	-7	-9	-13	LpA(A,out) [dB(A)]	-1	-11

**Wiring Diagram:**



**Drawing:**



Attention: Start-up times up to ~ 20 - 60 sec. depending on motor-impeller combination, motor load and number of operation.  
Please note during project planning (e.g. for condenser units in refrigeration circuits)!

Performance certified is for installation type A – free inlet, free outlet.  
Performance ratings do not include the effects of appurtenances (accessories).

The A-weighted sound power ratings shown have been calculated per AMCA Standard 301. Values shown are for inlet LwA sound power levels for installation type A: free inlet, free outlet. The dBA levels are not licensed by AMCA International.



Rosenberg Ventilatoren GmbH certifies that GKHM shown herein is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and AMCA Publication 311 and comply with the requirements of the AMCA Certified Ratings Program.

## Laufräder (B-Serie)

Laufrad aus Aluminium (AlMg3) mit 7 rückwärtsgekrümmten Schaufeln und umlaufendem wirkungsgradoptimierenden Diffusor. Geräuschoptimiertes Design. Druckorientiertes Verhalten. Sie sind zusammen mit dem jeweils verwendeten Außenläufermotor entsprechend der Gütestufe G6.3 (bis Baugröße 400) und G2.5 (ab Baugröße 450) nach DIN ISO 1940 statisch und dynamisch gewuchtet. Der Nenn Durchmesser entspricht nicht zwangsläufig dem tatsächlichen Außendurchmesser der Laufäder.

## Drehrichtung

Die Drehrichtung der Laufäder ist serienmäßig rechtsdrehend (gesehen auf die Ansaugseite). Bei falscher Drehrichtung besteht Überlastungsgefahr für den Motor (bei EC Motoren mit integrierter Elektronik nicht möglich). Daher sollte immer bei der Inbetriebnahme die Drehrichtung überprüft werden.

## Einströmdüse

Die Einströmdüsen bestehen aus verzinktem Stahlblech. Sie sind strömungstechnisch optimiert und gewährleisten eine gute Anströmung des Laufrades. Die optimale Eintauchtiefe der Einströmdüse ins Laufrad ist auf der entsprechenden Zeichnung beschrieben. Über die im Lieferumfang enthaltene Ringmessleitung beim GKHM kann eine Volumenstromüberwachung bzw. eine Volumenstromregelung erfolgen.

## Impellers (B-Series)



Impeller made of aluminum (AlMg3) with 7 backward curved blades and efficiency optimized circumferential diffuser. Sound optimized. Pressure orientated behaviour. The impellers are statically and dynamically balanced with hubs according to quality level G6.3 (up to size 400) and G2.5 (from size 450) DIN ISO 1940. The nominal diameter does not necessarily correspond to the actual outer diameter of the impellers.

## Direction of Rotation

Proper direction of the rotation of the impellers viewed from the inlet side is clockwise. Improper direction of rotation can overload the motor (not possible with EC motors integrated electronics); therefore it is essential to check the direction of rotation before initial operation.

## Inlet Cones

The inlet cones are made of galvanized steel sheet metal. They are fluidic optimized and offer good air flow to the impeller. The optimal immersion depth of the impeller is shown on the corresponding dimensional drawings. Air flow control and monitoring can be done through the circular lead included in the scope of delivery of GKHM.

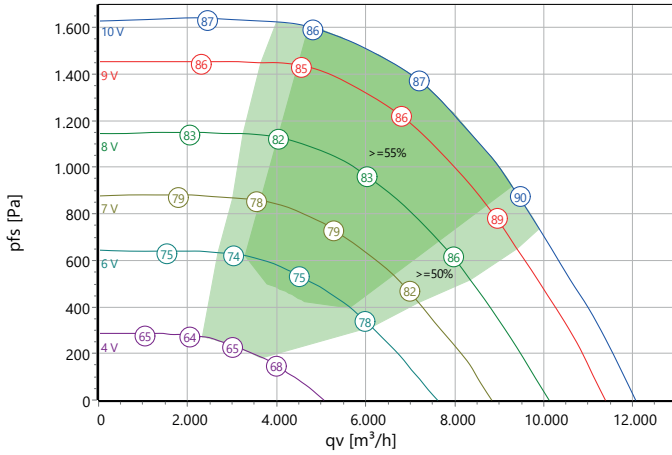
	Art.-Nr. / Art.-No.	
Typ / Type	GKHR ...	GKHM ...
... 450-CIB.140.6IF IE Gen3	N86-45305	N88-45316
... 450-CIB.140.6IF IE Gen3+	N86-45306	N88-45319
... 450-CIB.140.5HF IE Gen3	N86-45307	N88-45320
... 450-CIB.140.6FF IE Gen3	N86-45308	N88-45321
... 450-CIB.140.6NA IE Gen3+	N86-45309	N88-45322
... 500-CIB.160.6NA IE Gen3+	N86-50304	N88-50322
... 500-CIB.160.6IF IE Gen3	N86-50303	N88-50317



Type: **GKH M 450-CIB.140.6IF IE Gen3**  
Module  
Part no.: N88-45316



**Curve:**



**ErP-Data:**

(EU) Nr. 327/2011 (Lot11)

q <sub>v</sub>	7149	m <sup>3</sup> /h
P <sub>fs</sub>	1381	Pa
η <sub>fs</sub>	64,7	%
P <sub>ed</sub>	4,47	kW
n	2365	r/min
N	68	N
v	8,865	m/s

Rosenberg Ventilatoren GmbH certifies that GKH M herein is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and AMCA Publication 311 and comply with the requirements of the AMCA Certified Ratings Program.

ρ: 1,15 kg/m<sup>3</sup>; Data @ 400 V

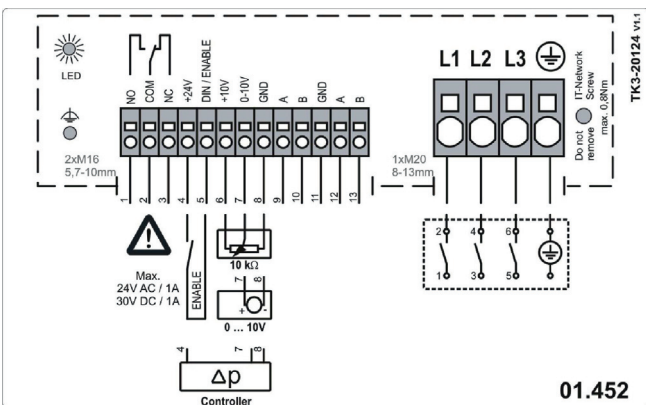
**Nominal Data:**

U [V]	f [Hz]	Data @ [V]	P <sub>ed</sub> [kW]	I <sub>n</sub> [A]	n <sub>n</sub> [r/min]	t <sub>r</sub> [°C]	k <sub>10</sub> [m <sup>2</sup> /s/h]	Eff.-Rating	IP	m [kg]
3~380-480	50/60	400	4,5	7	2365	-25 .. +40	155	IE5	IP 54	43
		460		5,9						

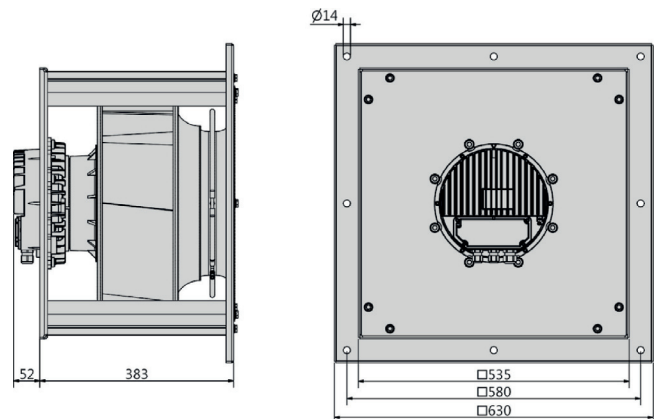
**Sound Data:**

Frequency	Σ	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	Distances	1 m	4 m
LwA(A,in) [dB(A)]		-33	-25	-8	-7	-5	-7	-10	-17	LpA(A,in) [dB(A)]	-7	-17
LwA(A,out) [dB(A)]	7	-35	-24	-8	-6	-5	-7	-12	-20	LpA(A,out) [dB(A)]	0	-10

**Wiring Diagram:**



**Drawing:**



Attention: Start-up times up to ~ 20 - 60 sec. depending on motor-impeller combination, motor load and number of operation.  
Please note during project planning (e.g. for condenser units in refrigeration circuits)!

Performance certified is for installation type A – free inlet, free outlet.  
Performance ratings do not include the effects of appurtenances (accessories).

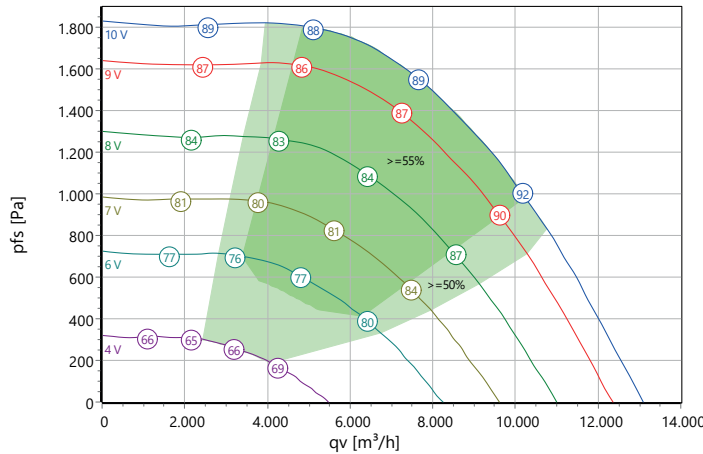
The A-weighted sound power ratings shown have been calculated per AMCA Standard 301. Values shown are for inlet LwA sound power levels for installation type A: free inlet, free outlet. The dBA levels are not licensed by AMCA International.



Type: **GKHM 450-CIB.140.6IF IE Gen3+**  
 Module  
 Part no.: N88-45319



**Curve:**



**ErP-Data:**

(EU) Nr. 327/2011 (Lot11)		
q <sub>v</sub>	7203	m <sup>3</sup> /h
P <sub>fs</sub>	1618	Pa
η <sub>fs</sub>	65,1	%
P <sub>ed</sub>	5,25	kW
n	2475	r/min
N	68	N
v	8,932	m/s

Rosenberg Ventilatoren GmbH certifies that GKHM shown herein is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and AMCA Publication 311 and comply with the requirements of the AMCA Certified Ratings Program.

ρ: 1,15 kg/m<sup>3</sup>; Data @ 400 V

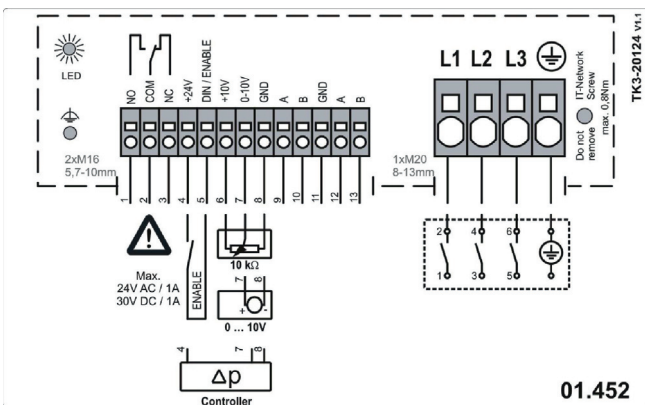
**Nominal Data:**

U [V]	f [Hz]	Data @ [V]	P <sub>ed</sub> [kW]	I <sub>N</sub> [A]	n <sub>N</sub> [r/min]	t <sub>r</sub> [°C]	k <sub>10</sub> [m <sup>2</sup> s/h]	Eff.-Rating	IP	m [kg]
3~380-480	50/60	400	5,4	8,3	2475	-25 .. +40	155	IE4	IP 54	44
		460		7,4						

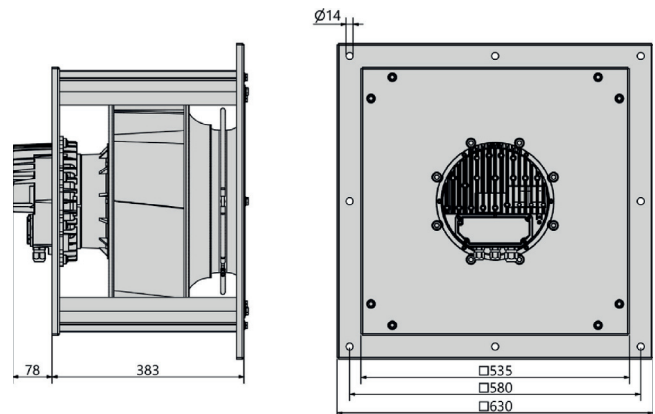
**Sound Data:**

Frequency	Σ	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	Distances	1 m	4 m
LwA(A,in) [dB(A)]		-33	-25	-8	-7	-5	-7	-10	-17	LpA(A,in) [dB(A)]	-7	-17
LwA(A,out) [dB(A)]	7	-35	-24	-8	-6	-5	-7	-12	-20	LpA(A,out) [dB(A)]	0	-10

**Wiring Diagram:**



**Drawing:**



Attention: Start-up times up to ~ 20 - 60 sec. depending on motor-impeller combination, motor load and number of operation.  
 Please note during project planning (e.g. for condenser units in refrigeration circuits)!

Performance certified is for installation type A – free inlet, free outlet.  
 Performance ratings do not include the effects of appurtenances (accessories).

The A-weighted sound power ratings shown have been calculated per AMCA Standard 301. Values shown are for inlet Lw<sub>i</sub>A sound power levels for installation type A: free inlet, free outlet. The dBA levels are not licensed by AMCA International.

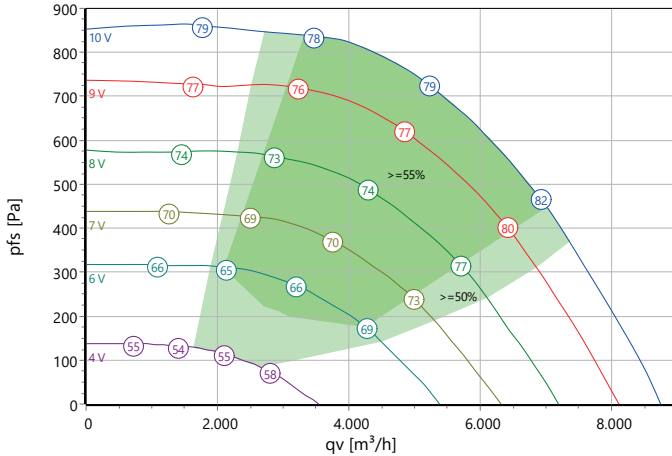




Type: **GKHM 450-CIB.140.5HF IE Gen3**  
 Module  
 Part no.: N88-45320



**Curve:**



$\rho$ : 1,15 kg/m<sup>3</sup>; Data @ 400 V

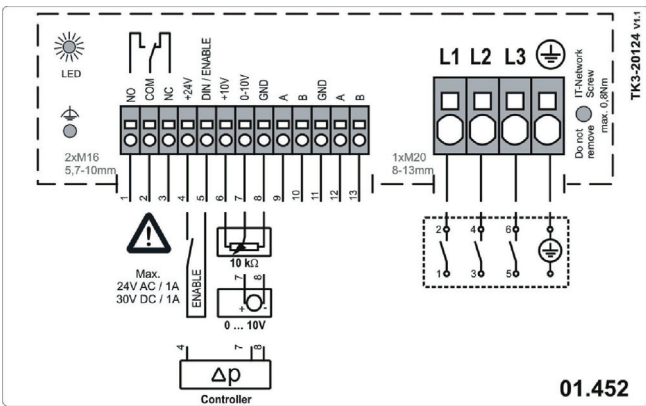
**Nominal Data:**

U [V]	f [Hz]	Data @ [V]	P <sub>ed</sub> [kW]	I <sub>n</sub> [A]	n <sub>n</sub> [r/min]	t <sub>r</sub> [°C]	k <sub>10</sub> [m <sup>2</sup> /h]	Eff.-Rating	IP	m [kg]
3~380-480	50/60	400	1,71	2,7	1700	-25 .. +40	155	IE5	IP 54	36
		460		2,41						

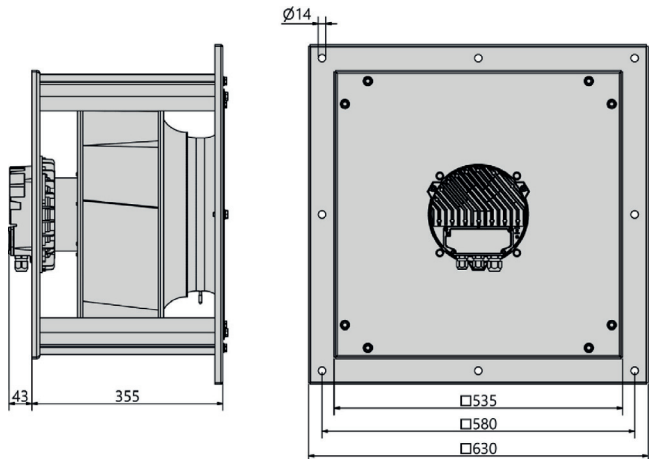
**Sound Data:**

Frequency	Σ	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	Distances	1 m	4 m
LwA(A,in) [dB(A)]		-33	-25	-8	-7	-5	-7	-10	-17	LpA(A,in) [dB(A)]	-7	-17
LwA(A,out) [dB(A)]	7	-35	-24	-8	-6	-5	-7	-12	-20	LpA(A,out) [dB(A)]	0	-10

**Wiring Diagram:**



**Drawing:**



Attention: Start-up times up to ~ 20 - 60 sec. depending on motor-impeller combination, motor load and number of operation.  
 Please note during project planning (e.g. for condenser units in refrigeration circuits)!

Performance certified is for installation type A – free inlet, free outlet.  
 Performance ratings do not include the effects of appurtenances (accessories).

The A-weighted sound power ratings shown have been calculated per AMCA Standard 301. Values shown are for inlet LwA sound power levels for installation type A: free inlet, free outlet. The dBA levels are not licensed by AMCA International.



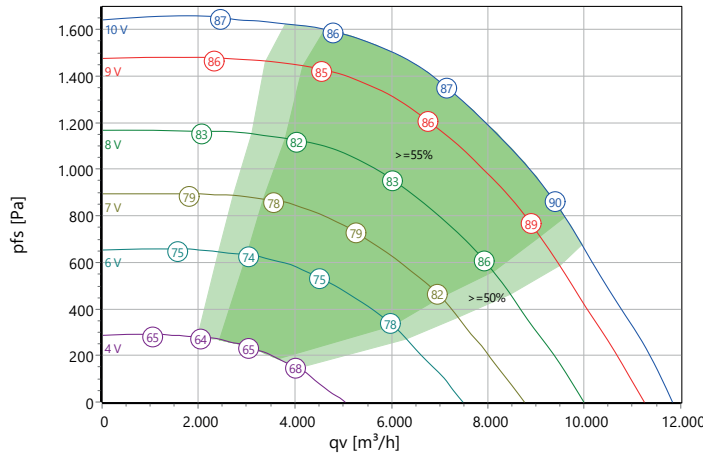
Rosenberg Ventilatoren GmbH certifies that GKHM shown herein is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and AMCA Publication 311 and comply with the requirements of the AMCA Certified Ratings Program.



Type: **GKHM 450-CIB.140.6FF IE Gen3**  
 Module  
 Part no.: N88-45321



**Curve:**



**ErP-Data:**

(EU) Nr. 327/2011 (Lot11)		
q <sub>v</sub>	7284	m <sup>3</sup> /h
P <sub>fs</sub>	1326	Pa
η <sub>fs</sub>	65,8	%
P <sub>ed</sub>	4,3	kW
n	2350	r/min
N	70	N
v	9,033	m/s

Rosenberg Ventilatoren GmbH certifies that GKHM shown herein is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and AMCA Publication 311 and comply with the requirements of the AMCA Certified Ratings Program.

ρ: 1,15 kg/m<sup>3</sup>; Data @ 400 V

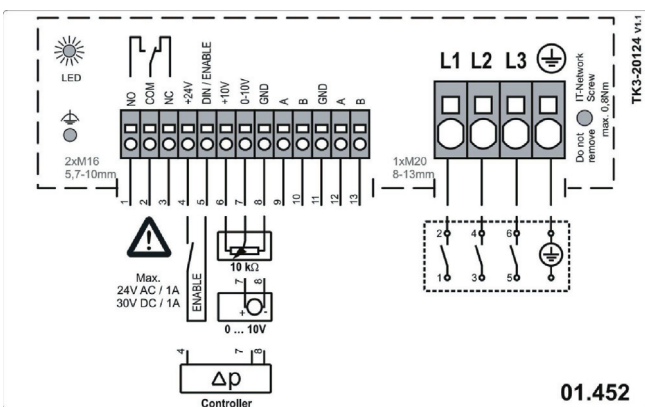
**Nominal Data:**

U [V]	f [Hz]	Data @ [V]	P <sub>ed</sub> [kW]	I <sub>N</sub> [A]	n <sub>N</sub> [r/min]	t <sub>r</sub> [°C]	k <sub>10</sub> [m <sup>2</sup> s/h]	Eff.-Rating	IP	m [kg]
3~380-480	50/60	400	4,3	6,55	2350	-25 .. +40	155	IE5	IP 54	39
		460		5,8						

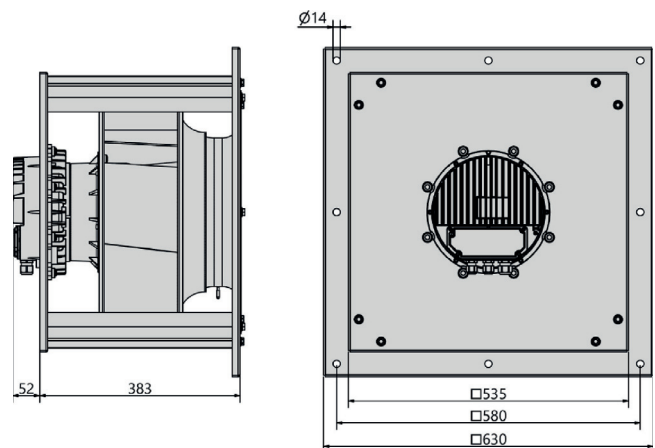
**Sound Data:**

Frequency	Σ	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	Distances	1 m	4 m
LwA(A,in) [dB(A)]		-33	-25	-8	-7	-5	-7	-10	-17	LpA(A,in) [dB(A)]	-7	-17
LwA(A,out) [dB(A)]	7	-35	-24	-8	-6	-5	-7	-12	-20	LpA(A,out) [dB(A)]	0	-10

**Wiring Diagram:**



**Drawing:**



Attention: Start-up times up to ~ 20 - 60 sec. depending on motor-impeller combination, motor load and number of operation.  
 Please note during project planning (e.g. for condenser units in refrigeration circuits)!

Performance certified is for installation type A – free inlet, free outlet.  
 Performance ratings do not include the effects of appurtenances (accessories).

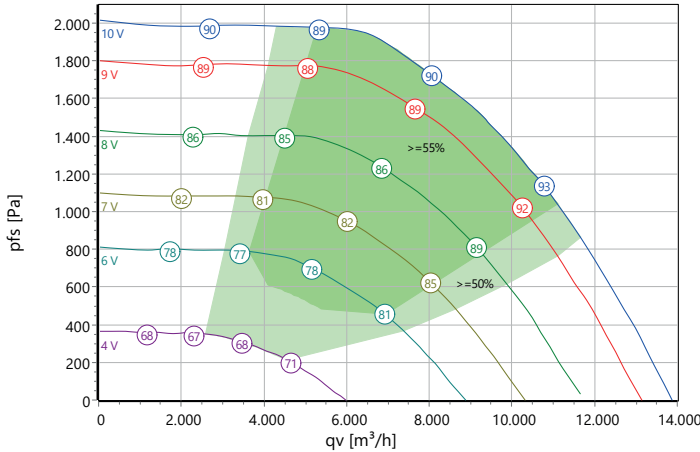
The A-weighted sound power ratings shown have been calculated per AMCA Standard 301. Values shown are for inlet Lw<sub>i</sub>A sound power levels for installation type A: free inlet, free outlet. The dBA levels are not licensed by AMCA International.



Type: **GKHM 450-CIB.140.6NA IE Gen3+**  
Module  
Part no.: N88-45322



**Curve:**



**ErP-Data:**

(EU) Nr. 327/2011 (Lot11)

q <sub>v</sub>	8956	m <sup>3</sup> /h
P <sub>fs</sub>	1571	Pa
η <sub>fs</sub>	65,2	%
P <sub>ed</sub>	6,32	kW
n	2600	r/min
N	67	N
v	11,106	m/s

Rosenberg Ventilatoren GmbH certifies that GKHM shown herein is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and AMCA Publication 311 and comply with the requirements of the AMCA Certified Ratings Program.

ρ: 1,15 kg/m<sup>3</sup>; Data @ 400 V

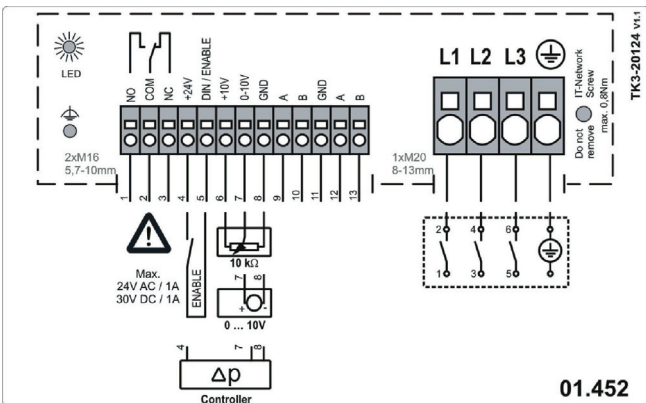
**Nominal Data:**

U [V]	f [Hz]	Data @ [V]	P <sub>ed</sub> [kW]	I <sub>N</sub> [A]	n <sub>N</sub> [r/min]	t <sub>r</sub> [°C]	k <sub>10</sub> [m <sup>2</sup> /h]	Eff.-Rating	IP	m [kg]
3~380-480	50/60	400	6,3	9,6	2600	-25 .. +40	155	IE4	IP 54	48
		460		8,5						

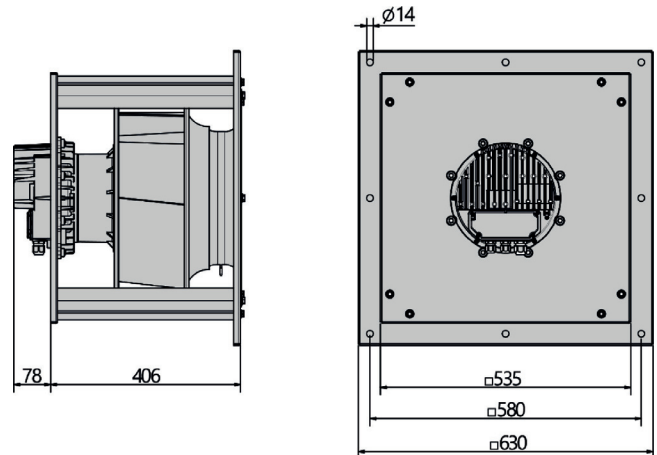
**Sound Data:**

Frequency	Σ	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	Distances	1 m	4 m
LwA(A,in) [dB(A)]		-33	-25	-8	-7	-5	-7	-10	-17	LpA(A,in) [dB(A)]	-7	-17
LwA(A,out) [dB(A)]	7	-35	-24	-8	-6	-5	-7	-12	-20	LpA(A,out) [dB(A)]	0	-10

**Wiring Diagram:**



**Drawing:**



Attention: Start-up times up to ~ 20 - 60 sec. depending on motor-impeller combination, motor load and number of operation.  
Please note during project planning (e.g. for condenser units in refrigeration circuits)!

Performance certified is for installation type A – free inlet, free outlet.  
Performance ratings do not include the effects of appurtenances (accessories).

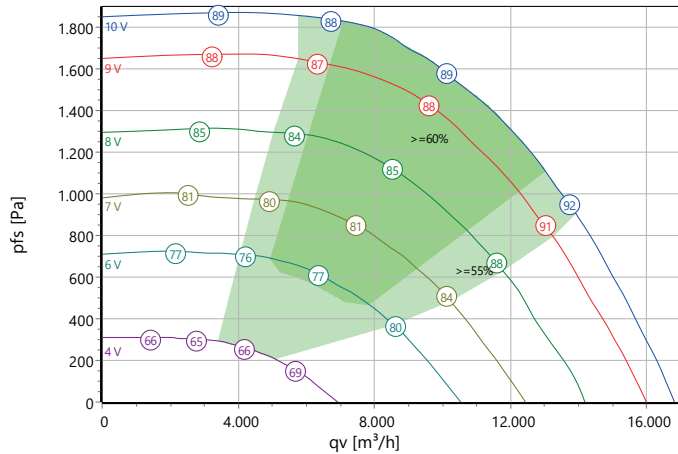
The A-weighted sound power ratings shown have been calculated per AMCA Standard 301. Values shown are for inlet LwA sound power levels for installation type A: free inlet, free outlet. The dBA levels are not licensed by AMCA International.



Type: **GKH 500-CIB.160.6NA IE Gen3+**  
Module  
Part no.: N88-50322



**Curve:**



**ErP-Data:**

(EU) Nr. 327/2011 (Lot11)		
q <sub>v</sub>	11291	m <sup>3</sup> /h
P <sub>fs</sub>	1427	Pa
η <sub>fs</sub>	67,3	%
P <sub>ed</sub>	7,01	kW
n	2225	r/min
N	69	N
v	10,966	m/s

Rosenberg Ventilatoren GmbH certifies that GKH shown herein is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and AMCA Publication 311 and comply with the requirements of the AMCA Certified Ratings Program.

ρ: 1,15 kg/m<sup>3</sup>; Data @ 400 V

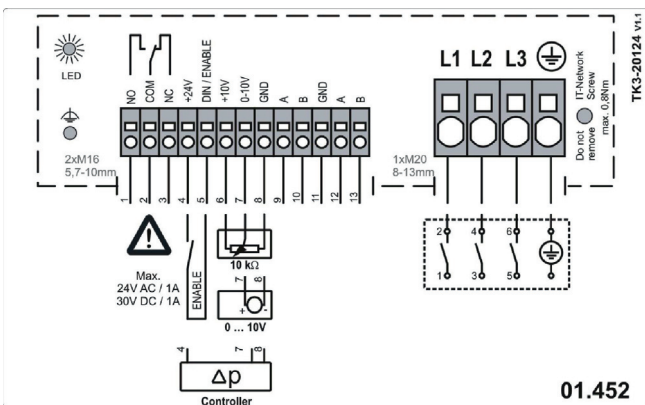
**Nominal Data:**

U [V]	f [Hz]	Data @ [V]	P <sub>ed</sub> [kW]	I <sub>N</sub> [A]	n <sub>N</sub> [r/min]	t <sub>r</sub> [°C]	k <sub>10</sub> [m <sup>2</sup> s/h]	Eff.-Rating	IP	m [kg]
3~380-480	50/60	400	7	10,7	2225	-25 .. +40	198	IE4	IP 54	58
		460		9,4						

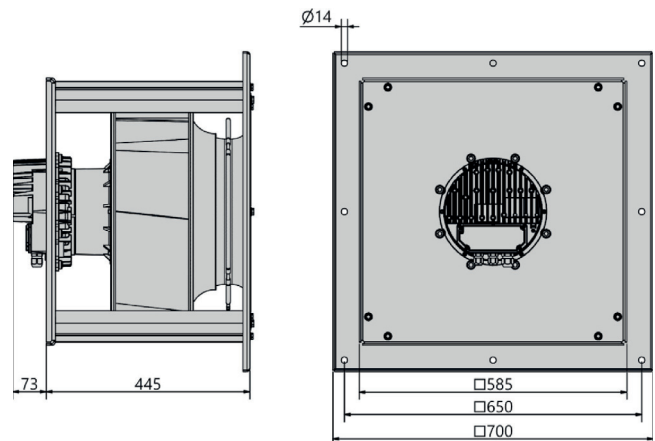
**Sound Data:**

Frequency	Σ	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	Distances	1 m	4 m
LwA(A,in) [dB(A)]		-35	-17	-8	-5	-7	-8	-10	-16	LpA(A,in) [dB(A)]	-7	-17
LwA(A,out) [dB(A)]	7	-33	-11	-8	-7	-4	-9	-15	-20	LpA(A,out) [dB(A)]	0	-10

**Wiring Diagram:**



**Drawing:**



Attention: Start-up times up to ~ 20 - 60 sec. depending on motor-impeller combination, motor load and number of operation.  
Please note during project planning (e.g. for condenser units in refrigeration circuits)!

Performance certified is for installation type A – free inlet, free outlet.  
Performance ratings do not include the effects of appurtenances (accessories).

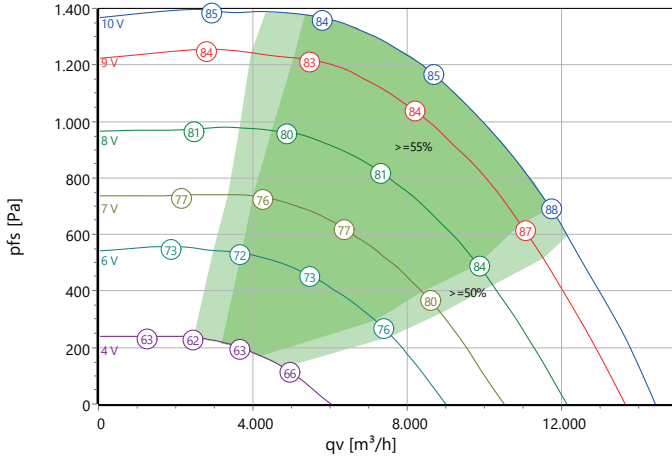
The A-weighted sound power ratings shown have been calculated per AMCA Standard 301. Values shown are for inlet Lw<sub>i</sub>A sound power levels for installation type A: free inlet, free outlet. The dBA levels are not licensed by AMCA International.



Type: **GKHM 500-CIB.160.6IF IE Gen3**  
Module  
Part no.: N88-50317



**Curve:**



$\rho$ : 1,15 kg/m<sup>3</sup>; Data @ 400 V

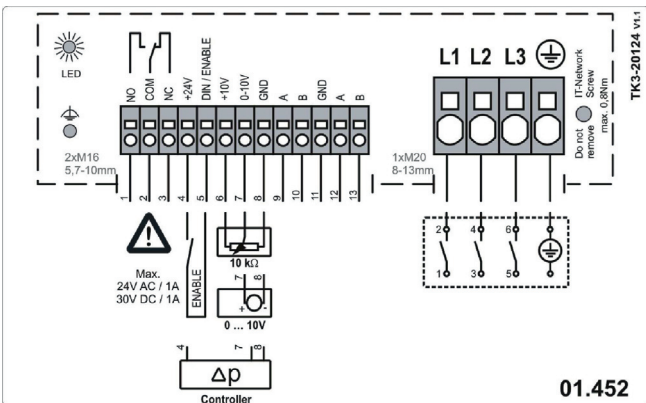
**Nominal Data:**

U [V]	f [Hz]	Data @ [V]	P <sub>ed</sub> [kW]	I <sub>n</sub> [A]	n <sub>n</sub> [r/min]	t <sub>r</sub> [°C]	k <sub>10</sub> [m <sup>2</sup> /h]	Eff.-Rating	IP	m [kg]
3~380-480	50/60	400	4,5	7	1920	-25 .. +40	198	IE5	IP 54	52
		460		6						

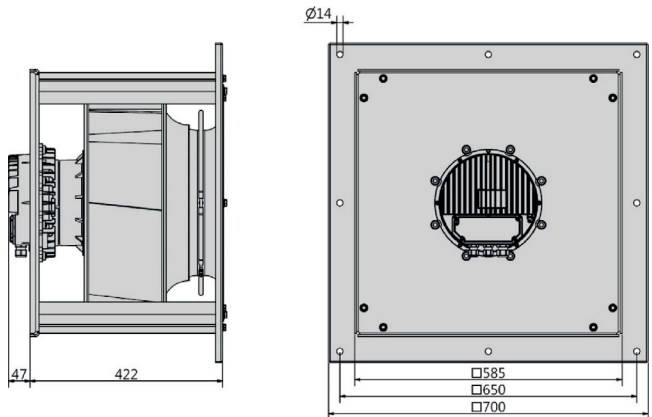
**Sound Data:**

Frequency	Σ	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	Distances	1 m	4 m
LwA(A,in) [dB(A)]		-35	-17	-8	-5	-7	-8	-10	-16	LpA(A,in) [dB(A)]	-7	-17
LwA(A,out) [dB(A)]	7	-33	-11	-8	-7	-4	-9	-15	-20	LpA(A,out) [dB(A)]	0	-10

**Wiring Diagram:**



**Drawing:**



Attention: Start-up times up to ~ 20 - 60 sec. depending on motor-impeller combination, motor load and number of operation.  
Please note during project planning (e.g. for condenser units in refrigeration circuits)!

Performance certified is for installation type A – free inlet, free outlet.  
Performance ratings do not include the effects of appurtenances (accessories).

The A-weighted sound power ratings shown have been calculated per AMCA Standard 301. Values shown are for inlet LwA sound power levels for installation type A: free inlet, free outlet. The dBA levels are not licensed by AMCA International.



Rosenberg Ventilatoren GmbH certifies that GKHM shown herein is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and AMCA Publication 311 and comply with the requirements of the AMCA Certified Ratings Program.

**ErP-Data:**

(EU) Nr. 327/2011 (Lot11)

q <sub>v</sub>	8133	m <sup>3</sup> /h
P <sub>fs</sub>	1224	Pa
η <sub>fs</sub>	66,8	%
P <sub>ed</sub>	4,37	kW
n	1920	r/min
N	71	N
v	7,899	m/s

## Laufräder (E-Serie)

Laufrad der Baugröße 280 aus Polyamid (PA66), schwarz, glasfaserverstärkt und ab Baugröße 315 aus Polypropylen (PP), UV-stabilisiert, schwarz, glasfaserverstärkt mit 7 rückwärts gekrümmten, profilierten Schaufeln und schmalem umlaufendem wirkungsgradoptimierenden Diffusor. Volumenstromorientiertes Verhalten. Sie sind zusammen mit dem jeweils verwendeten Außenläufermotor entsprechend der Gütestufe G6.3 (bis Baugröße 400) und G2.5 (ab Baugröße 450) nach DIN ISO 1940 statisch und dynamisch gewuchtet. Der Nenn Durchmesser entspricht nicht zwangsläufig dem tatsächlichen Außendurchmesser der Laufräder.

### Drehrichtung

Die Drehrichtung der Laufräder ist serienmäßig rechtsdrehend (gesehen auf die Ansaugseite). Bei falscher Drehrichtung besteht Überlastungsgefahr für den Motor (bei EC Motoren mit integrierter Elektronik nicht möglich). Daher sollte immer bei der Inbetriebnahme die Drehrichtung überprüft werden.

### Einströmdüse

Die Einströmdüsen bestehen aus verzinktem Stahlblech. Sie sind strömungstechnisch optimiert und gewährleisten eine gute Anströmung des Laufrades. Die optimale Eintauchtiefe der Einströmdüse ins Laufrad ist auf der entsprechenden Zeichnung beschrieben. Über die im Lieferumfang enthaltene Ringmessleitung beim GKHM/C kann eine Volumenstromüberwachung bzw. eine Volumenstromregelung erfolgen.

## Impellers (E-Series)



E-series impeller size 280 made of polyamide (PA66), black, glass fiber reinforced and from size 315 made of polypropylene (PP), UV-stabilized, black, glass fiber reinforced with 7 profiled blades curved backwards and a narrow circumferential diffuser to optimise efficiency. Volume-flow orientated behaviour. The impellers are statically and dynamically balanced with hubs according to quality level G6.3 (up to size 400) and G2.5 (from size 450) DIN ISO 1940. The nominal diameter does not necessarily correspond to the actual outer diameter of the impellers.

### Direction of Rotation

Proper direction of the rotation of the impellers viewed from the inlet side is clockwise. Improper direction of rotation can overload the motor (not possible with EC motors integrated electronics); therefore it is essential to check the direction of rotation before initial operation.

### Inlet Cones

The inlet cones are made of galvanized steel sheet metal. They are fluidic optimized and offer good air flow to the impeller. The optimal immersion depth of the impeller is shown on the corresponding dimensional drawings. Air flow control and monitoring can be done through the circular lead included in the scope of delivery of GKHM/C.

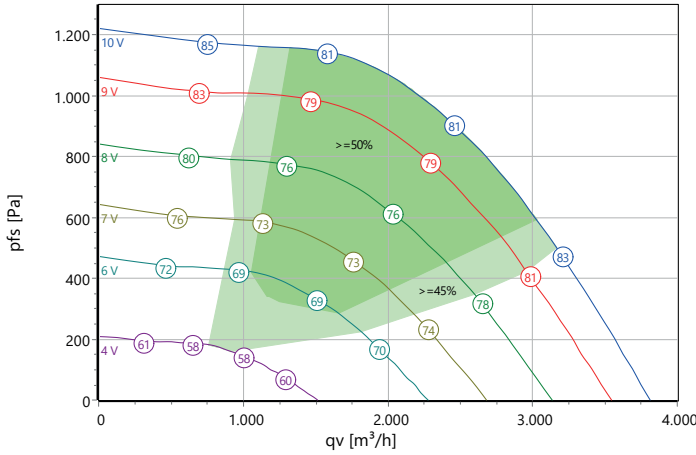
Typ / Type	Art.-Nr. / Art.-No.		
	GKHR ...	GKHM ...	GKHC ...
... 280-CIE.065.4EA IE MX	N42-28005	N43-28006	N43-28052
... 355-CIE.112.5FA IE Gen3	N42-35508	N43-35513	N43-35556
... 450-CIE.136.5HF IE Gen3	N42-45012	N43-45022	N43-45053
... 450-CIE.136.6FF Gen3	N42-45010	N43-45020	-
... 450-CIE.136.6FF IE Gen3	N42-45009	N43-45019	-
... 560-CIE.175.6IF IE Gen3	N42-56004	N43-56010	-
... 560-CIE.175.6FF Gen3	N42-56006	N43-56012	-



Type: **GKHM 280-CIE.065.4EA IE MX**  
Module  
Part no.: N43-28006



**Curve:**



**ErP-Data:**

(EU) Nr. 327/2011 (Lot11)

q <sub>v</sub>	2044	m <sup>3</sup> /h
P <sub>fs</sub>	1058	Pa
η <sub>fs</sub>	65	%
P <sub>ed</sub>	1,02	kW
n	4000	r/min
N	75	N
v	9,926	m/s

Rosenberg Ventilatoren GmbH certifies that GKHM shown herein is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and AMCA Publication 311 and comply with the requirements of the AMCA Certified Ratings Program.

ρ: 1,15 kg/m<sup>3</sup>; Data @ 400 V

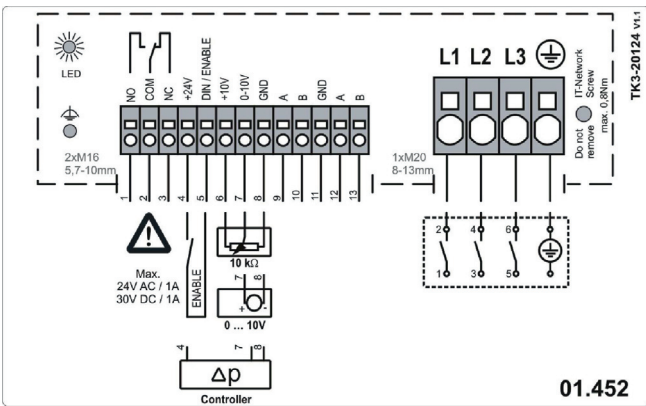
**Nominal Data:**

U [V]	f [Hz]	Data @ [V]	P <sub>ed</sub> [kW]	I <sub>N</sub> [A]	n <sub>N</sub> [r/min]	t <sub>r</sub> [°C]	k <sub>10</sub> [m <sup>2</sup> /h]	Eff.-Rating	IP	m [kg]
3~380-480	50/60	400	1,05	1,85	4000	-25 .. +50	72	IE4	IP 54	12,7
		460		1,7						

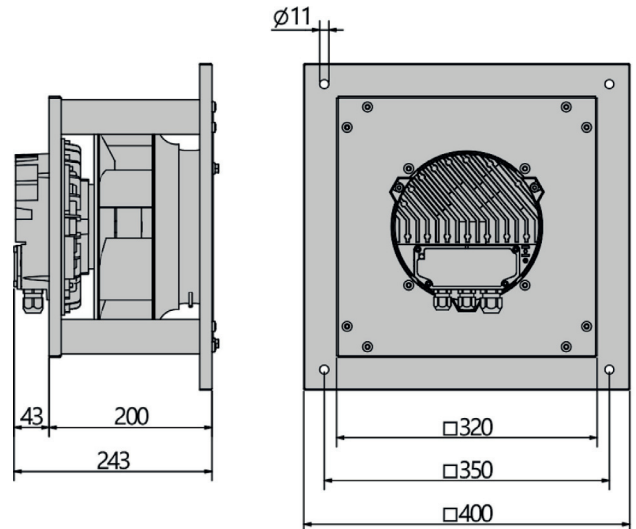
**Sound Data:**

Frequency	Σ	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	Distances	1 m	4 m
LwA(A,in) [dB(A)]		-27	-25	-13	-5	-4	-8	-13	-17	LpA(A,in) [dB(A)]	-7	-17
LwA(A,out) [dB(A)]	4	-31	-24	-11	-5	-6	-6	-11	-17	LpA(A,out) [dB(A)]	-3	-13

**Wiring Diagram:**



**Drawing:**



Attention: Start-up times up to ~ 20 - 60 sec. depending on motor-impeller combination, motor load and number of operation.  
Please note during project planning (e.g. for condenser units in refrigeration circuits)!

Performance certified is for installation type A – free inlet, free outlet.  
Performance ratings do not include the effects of appurtenances (accessories).

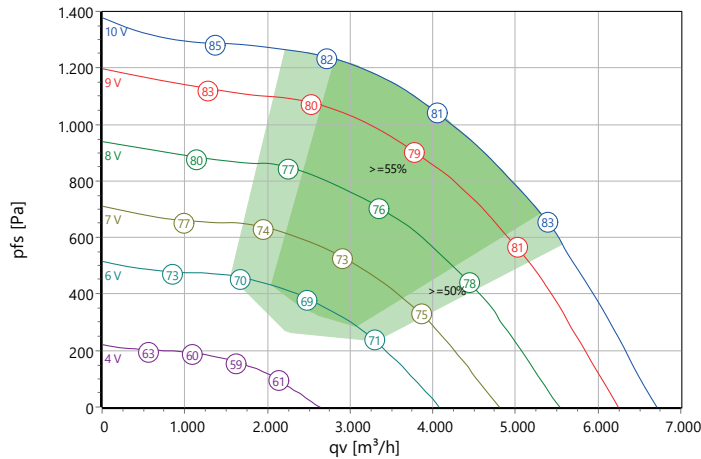
The A-weighted sound power ratings shown have been calculated per AMCA Standard 301. Values shown are for inlet LwA sound power levels for installation type A: free inlet, free outlet. The dBA levels are not licensed by AMCA International.



Type: **GKH M 355-CIE.112.5FA IE Gen3**  
 Module  
 Part no.: N43-35513



**Curve:**



**ErP-Data:**

(EU) Nr. 327/2011 (Lot11)

q <sub>v</sub>	4084	m <sup>3</sup> /h
P <sub>fs</sub>	1035	Pa
η <sub>fs</sub>	63,5	%
P <sub>ed</sub>	1,99	kW
n	2800	r/min
N	71	N
v	8,53	m/s

Rosenberg Ventilatoren GmbH certifies that GKH M shown herein is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and AMCA Publication 311 and comply with the requirements of the AMCA Certified Ratings Program.

ρ: 1,15 kg/m<sup>3</sup>; Data @ 400 V

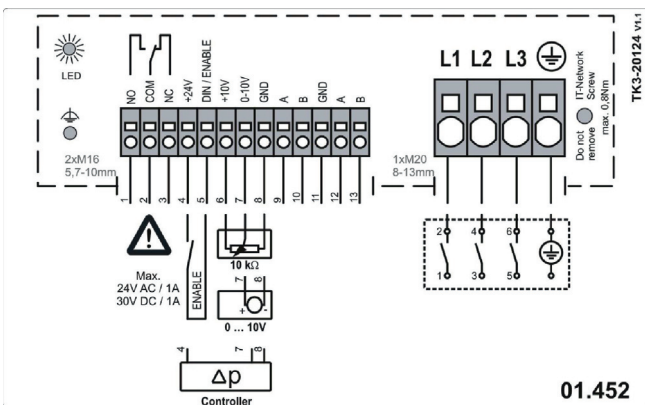
**Nominal Data:**

U [V]	f [Hz]	Data @ [V]	P <sub>ed</sub> [kW]	I <sub>N</sub> [A]	n [r/min]	t <sub>R</sub> [°C]	k <sub>10</sub> [m <sup>2</sup> s/h]	Eff.-Rating	IP	m [kg]
3~380-480	50/60	400	1,98	3,35	2800	-25 .. +40	118	IE5	IP 54	22,5
		460		3						

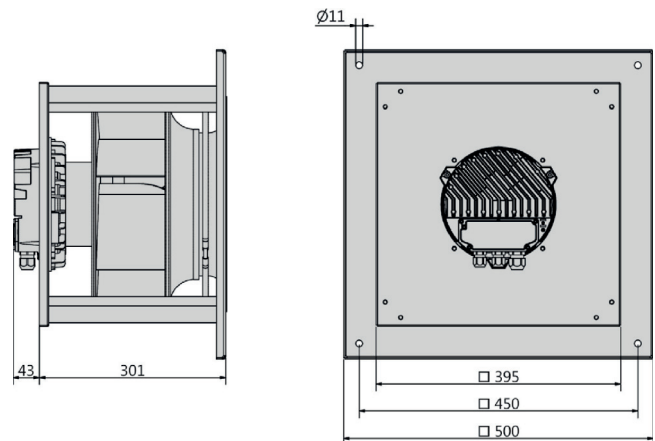
**Sound Data:**

Frequency	Σ	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	Distances	1 m	4 m
LwA(A,in) [dB(A)]		-27	-26	-4	-6	-9	-9	-11	-17	LpA(A,in) [dB(A)]	-7	-17
LwA(A,out) [dB(A)]	5	-32	-23	-6	-6	-6	-7	-15	-22	LpA(A,out) [dB(A)]	-2	-12

**Wiring Diagram:**



**Drawing:**



Attention: Start-up times up to ~ 20 - 60 sec. depending on motor-impeller combination, motor load and number of operation.  
 Please note during project planning (e.g. for condenser units in refrigeration circuits)!

Performance certified is for installation type A – free inlet, free outlet.  
 Performance ratings do not include the effects of appurtenances (accessories).

The A-weighted sound power ratings shown have been calculated per AMCA Standard 301. Values shown are for inlet Lw<sub>i</sub>A sound power levels for installation type A: free inlet, free outlet. The dBA levels are not licensed by AMCA International.

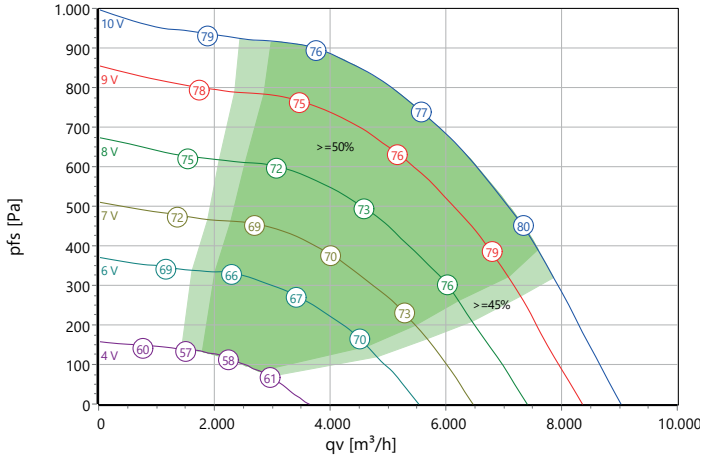




Type: **GKHM 450-CIE.136.5HF IE Gen3**  
Module  
Part no.: N43-45022



**Curve:**



$\rho$ : 1,15 kg/m<sup>3</sup>; Data @ 400 V

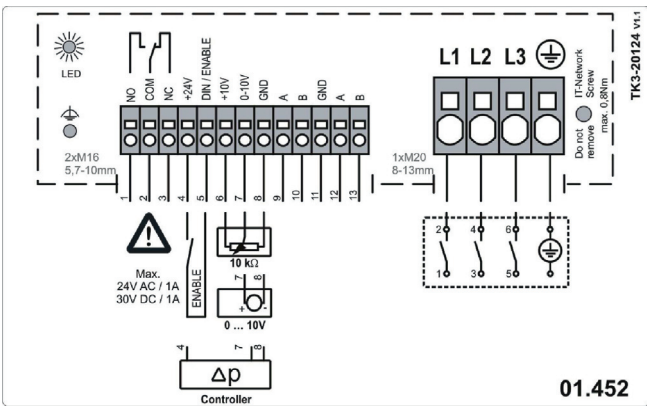
**Nominal Data:**

U [V]	f [Hz]	Data @ [V]	P <sub>ed</sub> [kW]	I <sub>n</sub> [A]	n <sub>n</sub> [r/min]	t <sub>r</sub> [°C]	k <sub>10</sub> [m <sup>2</sup> /h]	Eff.-Rating	IP	m [kg]
3~380-480	50/60	400	1,9	3	1900	-25 .. +40	196	IE5	IP 54	27,5
		460		2,65						

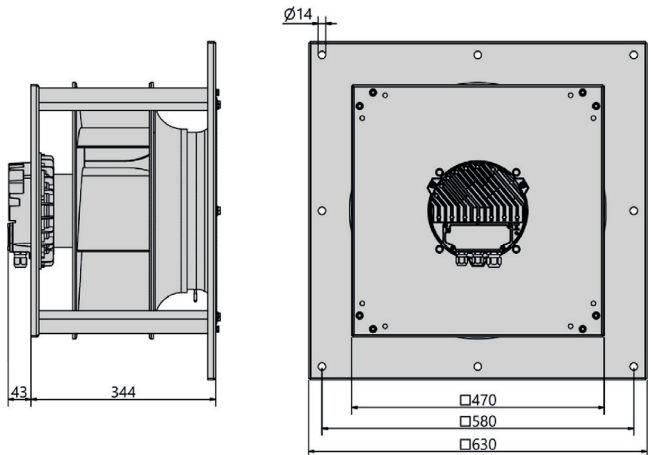
**Sound Data:**

Frequency	Σ	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	Distances	1 m	4 m
LwA(A,in) [dB(A)]		-33	-18	-6	-6	-7	-7	-12	-16	LpA(A,in) [dB(A)]	-7	-17
LwA(A,out) [dB(A)]	7	-33	-20	-8	-5	-5	-8	-16	-18	LpA(A,out) [dB(A)]	0	-10

**Wiring Diagram:**



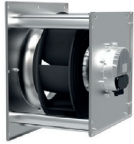
**Drawing:**



Attention: Start-up times up to ~ 20 - 60 sec. depending on motor-impeller combination, motor load and number of operation.  
Please note during project planning (e.g. for condenser units in refrigeration circuits)!

Performance certified is for installation type A – free inlet, free outlet.  
Performance ratings do not include the effects of appurtenances (accessories).

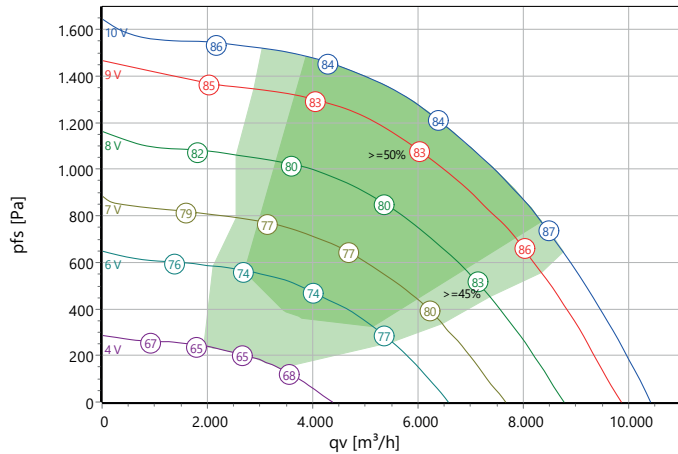
The A-weighted sound power ratings shown have been calculated per AMCA Standard 301. Values shown are for inlet LwA sound power levels for installation type A: free inlet, free outlet. The dBA levels are not licensed by AMCA International.



Type: **GKHM 450-CIE.136.6FF Gen3**  
 Module  
 Part no.: N43-45020



**Curve:**



**ErP-Data:**

(EU) Nr. 327/2011 (Lot11)		
q <sub>v</sub>	6178	m <sup>3</sup> /h
P <sub>fs</sub>	1250	Pa
η <sub>fs</sub>	59,6	%
P <sub>ed</sub>	3,81	kW
n	2400	r/min
N	64	N
v	8,412	m/s

Rosenberg Ventilatoren GmbH certifies that GKHM shown herein is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and AMCA Publication 311 and comply with the requirements of the AMCA Certified Ratings Program.

p: 1,15 kg/m<sup>3</sup>; Data @ 400 V

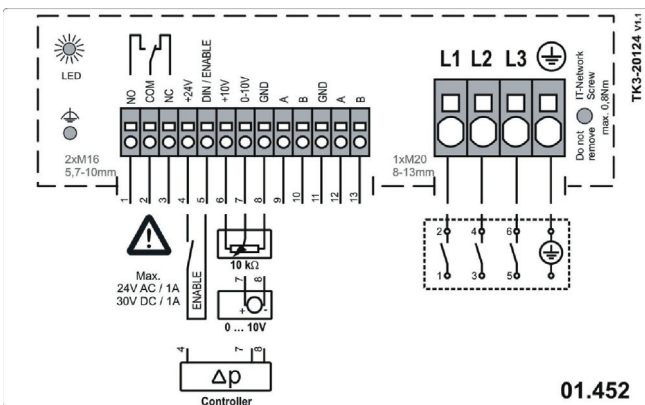
**Nominal Data:**

U [V]	f [Hz]	Data @ [V]	P <sub>ed</sub> [kW]	I <sub>N</sub> [A]	n <sub>N</sub> [r/min]	t <sub>r</sub> [°C]	k <sub>10</sub> [m <sup>2</sup> s/h]	Eff.-Rating	IP	m [kg]
3~380-480	50/60	400	3,87	5,95	2400	-25 .. +50	192	IE5	IP 54	36,9
		460		5,2						

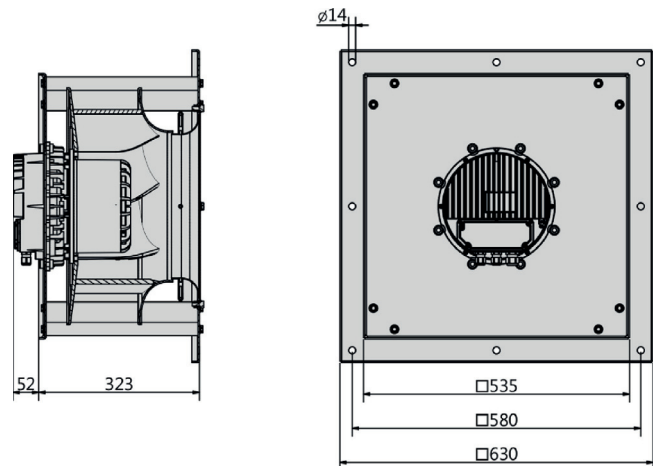
**Sound Data:**

Frequency	Σ	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	Distances	1 m	4 m
LwA(A,in) [dB(A)]		-31	-21	-7	-6	-6	-7	-12	-15	LpA(A,in) [dB(A)]	-7	-17
LwA(A,out) [dB(A)]	7	-28	-21	-8	-7	-4	-8	-12	-20	LpA(A,out) [dB(A)]	0	-10

**Wiring Diagram:**



**Drawing:**



Attention: Start-up times up to ~ 20 - 60 sec. depending on motor-impeller combination, motor load and number of operation.  
 Please note during project planning (e.g. for condenser units in refrigeration circuits)!

Performance certified is for installation type A – free inlet, free outlet.  
 Performance ratings do not include the effects of appurtenances (accessories).

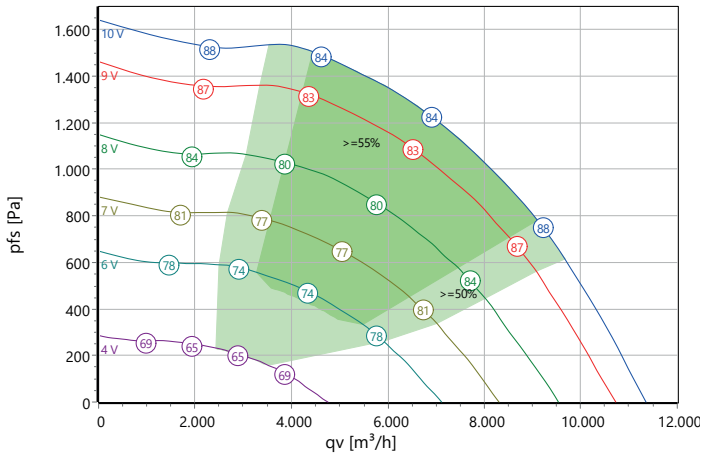
The A-weighted sound power ratings shown have been calculated per AMCA Standard 301. Values shown are for inlet Lw<sub>i</sub>A sound power levels for installation type A: free inlet, free outlet. The dBA levels are not licensed by AMCA International.



Type: **GKHM 450-CIE.136.6FF IE Gen3**  
Module  
Part no.: N43-45019



**Curve:**



**ErP-Data:**

(EU) Nr. 327/2011 (Lot11)

q <sub>v</sub>	6627	m <sup>3</sup> /h
p <sub>fs</sub>	1273	Pa
η <sub>fs</sub>	63,4	%
P <sub>ed</sub>	3,92	kW
n	2400	r/min
N	68	N
v	9,024	m/s

Rosenberg Ventilatoren GmbH certifies that GKHM shown herein is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and AMCA Publication 311 and comply with the requirements of the AMCA Certified Ratings Program.

ρ: 1,15 kg/m<sup>3</sup>; Data @ 400 V

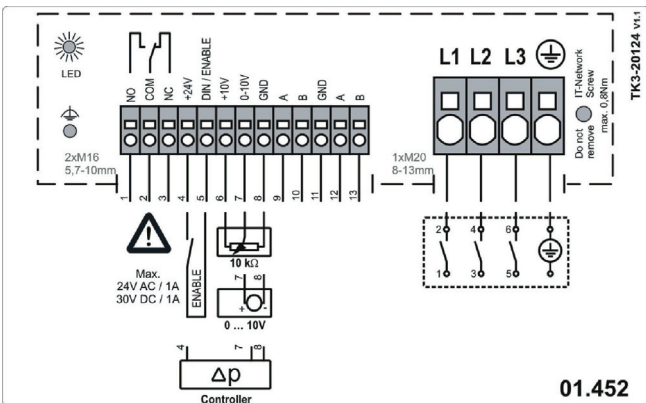
**Nominal Data:**

U [V]	f [Hz]	Data @ [V]	P <sub>ed</sub> [kW]	I <sub>n</sub> [A]	n <sub>n</sub> [r/min]	t <sub>r</sub> [°C]	k <sub>10</sub> [m <sup>2</sup> /h]	Eff.-Rating	IP	m [kg]
3~380-480	50/60	400	3,94	6	2400	-25 .. +40	192	IE5	IP 54	36,9
		460		5,3						

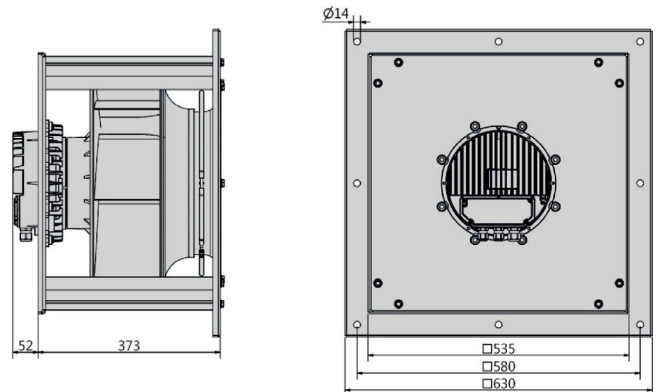
**Sound Data:**

Frequency	Σ	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	Distances	1 m	4 m
LwA(A,in) [dB(A)]		-38	-29	-6	-7	-6	-7	-12	-15	LpA(A,in) [dB(A)]	-7	-17
LwA(A,out) [dB(A)]	6	-31	-23	-6	-6	-5	-9	-13	-22	LpA(A,out) [dB(A)]	-1	-11

**Wiring Diagram:**



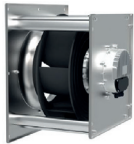
**Drawing:**



Attention: Start-up times up to ~ 20 - 60 sec. depending on motor-impeller combination, motor load and number of operation.  
Please note during project planning (e.g. for condenser units in refrigeration circuits)!

Performance certified is for installation type A – free inlet, free outlet.  
Performance ratings do not include the effects of appurtenances (accessories).

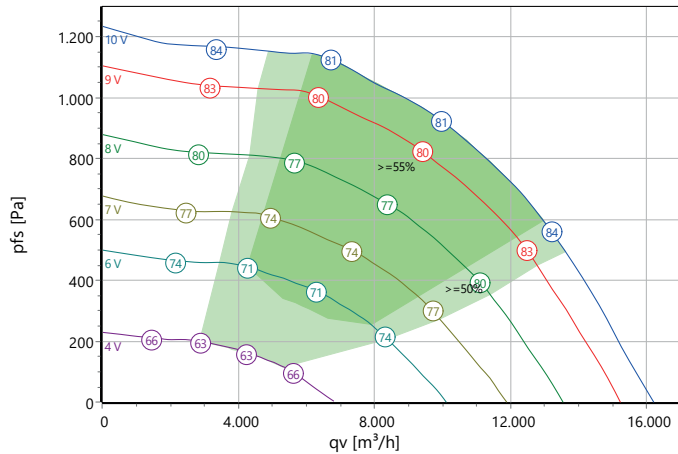
The A-weighted sound power ratings shown have been calculated per AMCA Standard 301. Values shown are for inlet LwA sound power levels for installation type A: free inlet, free outlet. The dBA levels are not licensed by AMCA International.



Type: **GKHM 560-CIE.175.6IF IE Gen3**  
 Module  
 Part no.: N43-56010



**Curve:**



**ErP-Data:**

(EU) Nr. 327/2011 (Lot11)		
q <sub>v</sub>	9986	m <sup>3</sup> /h
P <sub>fs</sub>	935	Pa
η <sub>fs</sub>	63,8	%
P <sub>ed</sub>	4,27	kW
n	1700	r/min
N	68	N
v	8,483	m/s

Rosenberg Ventilatoren GmbH certifies that GKHM shown herein is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and AMCA Publication 311 and comply with the requirements of the AMCA Certified Ratings Program.

ρ: 1,15 kg/m<sup>3</sup>; Data @ 400 V

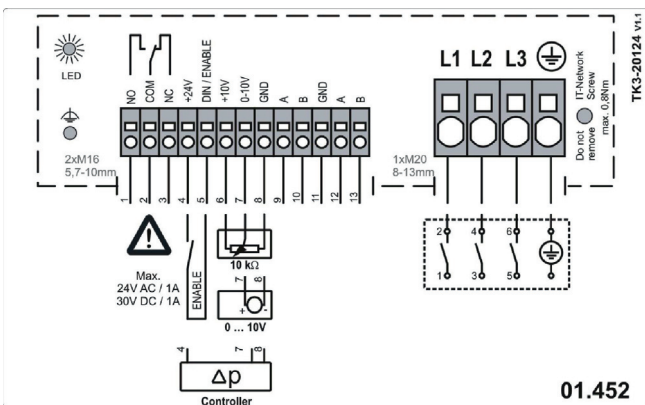
**Nominal Data:**

U [V]	f [Hz]	Data @ [V]	P <sub>ed</sub> [kW]	I <sub>N</sub> [A]	n <sub>N</sub> [r/min]	t <sub>r</sub> [°C]	k <sub>10</sub> [m <sup>2</sup> s/h]	Eff.-Rating	IP	m [kg]
3~380-480	50/60	400	4,28	6,55	1700	-25 .. +40	266	IE5	IP 54	53
		460		5,75						

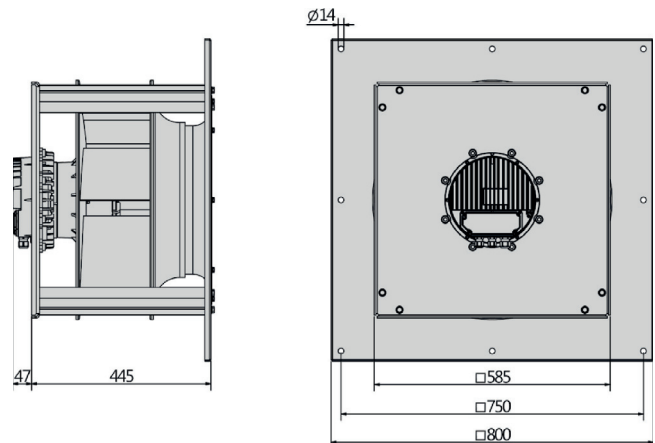
**Sound Data:**

Frequency	Σ	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	Distances		
LwA(A,in) [dB(A)]		-30	-12	-5	-6	-7	-10	-13	-18	LpA(A,in) [dB(A)]	1 m	4 m
LwA(A,out) [dB(A)]	7	-30	-13	-6	-5	-5	-13	-18	-24	LpA(A,out) [dB(A)]	0	-10

**Wiring Diagram:**



**Drawing:**



Attention: Start-up times up to ~ 20 - 60 sec. depending on motor-impeller combination, motor load and number of operation.  
 Please note during project planning (e.g. for condenser units in refrigeration circuits)!

Performance certified is for installation type A – free inlet, free outlet.  
 Performance ratings do not include the effects of appurtenances (accessories).

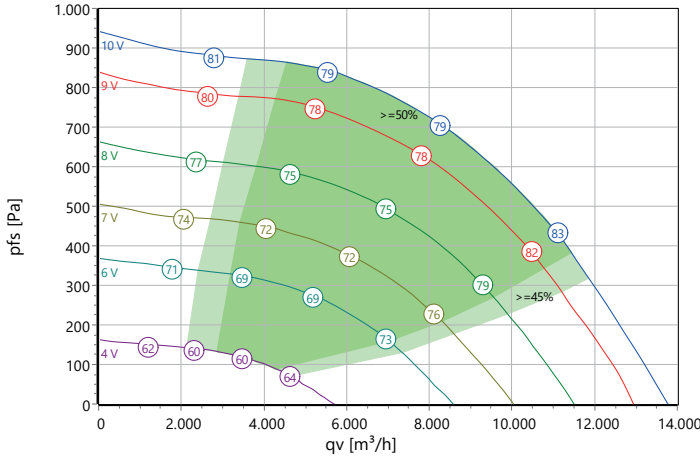
The A-weighted sound power ratings shown have been calculated per AMCA Standard 301. Values shown are for inlet Lw<sub>i</sub>A sound power levels for installation type A: free inlet, free outlet. The dBA levels are not licensed by AMCA International.



Type: **GKHM 560-CIE.175.6FF Gen3**  
Module  
Part no.: N43-56012



**Curve:**



**ErP-Data:**

(EU) Nr. 327/2011 (Lot11)

q <sub>v</sub>	8203	m <sup>3</sup> /h
P <sub>fs</sub>	712	Pa
η <sub>fs</sub>	62,3	%
P <sub>ed</sub>	2,77	kW
n	1480	r/min
N	68	N
v	6,968	m/s

Rosenberg Ventilatoren GmbH certifies that GKHM shown herein is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and AMCA Publication 311 and comply with the requirements of the AMCA Certified Ratings Program.

ρ: 1,15 kg/m<sup>3</sup>; Data @ 400 V

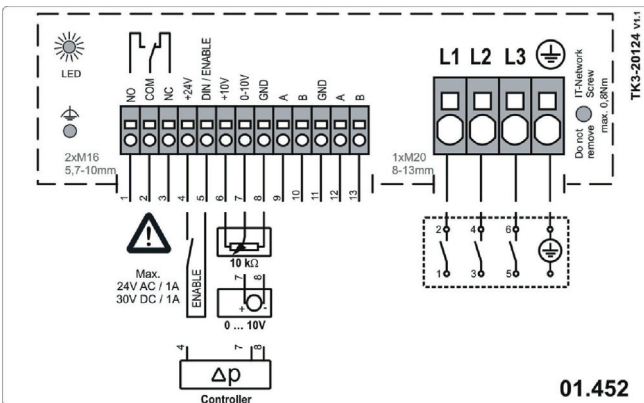
**Nominal Data:**

U [V]	f [Hz]	Data @ [V]	P <sub>ed</sub> [kW]	I <sub>N</sub> [A]	n <sub>N</sub> [r/min]	t <sub>r</sub> [°C]	k <sub>10</sub> [m <sup>2</sup> /s/h]	Eff.-Rating	IP	m [kg]
3~380-480	50/60	400	2,8	4,3	1480	-25 .. +40	278	IE5	IP 54	47
		460		3,9						

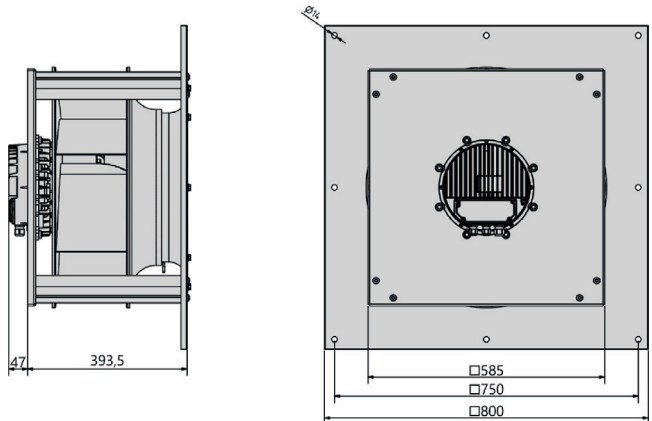
**Sound Data:**

Frequency	Σ	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	Distances	1 m	4 m
LwA(A,in) [dB(A)]		-30	-13	-6	-6	-6	-9	-13	-17	LpA(A,in) [dB(A)]	-7	-17
LwA(A,out) [dB(A)]	7	-16	-9	-7	-7	-5	-10	-17	-24	LpA(A,out) [dB(A)]	0	-10

**Wiring Diagram:**



**Drawing:**



Attention: Start-up times up to ~ 20 - 60 sec. depending on motor-impeller combination, motor load and number of operation.  
Please note during project planning (e.g. for condenser units in refrigeration circuits)!

Performance certified is for installation type A – free inlet, free outlet.  
Performance ratings do not include the effects of appurtenances (accessories).

The A-weighted sound power ratings shown have been calculated per AMCA Standard 301. Values shown are for inlet LwA sound power levels for installation type A: free inlet, free outlet. The dBA levels are not licensed by AMCA International.

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