



AIR TECH  
SYSTEMS

Technical brochure

# LTG Fans

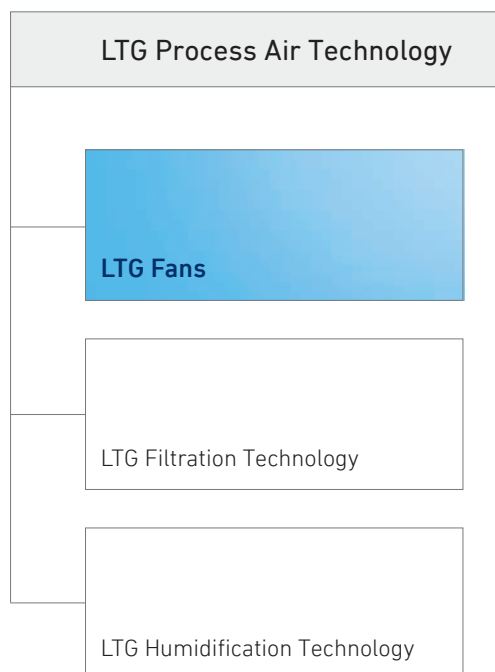
Tangential fans

**Type GA 25 / TA 40**

Impeller diameter 25 mm / 40 mm



[www.LTG.net](http://www.LTG.net)



## CONTENT

<b>General</b>	<b>3</b>
Flow principle	3
Advantages	3
Application of LTG High Performance Tangential Fans	3
Position of the fan	3
Installation and start up	3
Motor arrangement	3
<b>Type GA, impeller diameter 25 mm</b>	<b>4</b>
Service conditions	4
Dimensions	4
Fan curve	4
Specification and design features	4
Motor	4
<b>Type TA, impeller diameter 40 mm</b>	<b>5</b>
Service conditions	5
Dimensions	5
Range	5
Specification and design features	5
Motor	5
Fan curves for 24 V, DC	6
Acoustical data	6
Electrical connections A/C motor	7
Wiring diagram	7
Electrical connections D/C motor	7
Wiring diagram	7

Dimensions in this technical documentation are given in mm.

General tolerances according to DIN ISO 2768-cl apply.

## GENERAL

### An advantage for best heating, cooling, drying, blasting

Many production processes require an extended linear and absolutely even distribution of air or other gases over a certain area.

The special design of, High Performance Tangential Fans provides the optimum solution for these requirements.

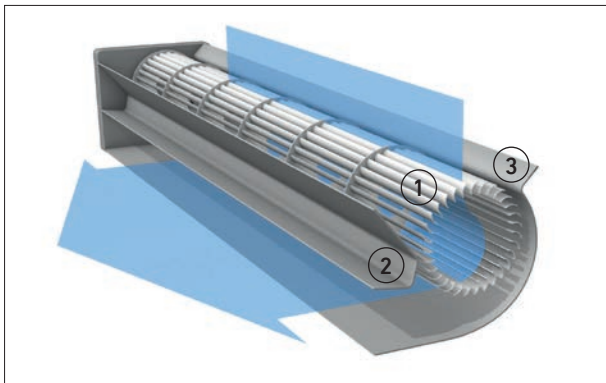
The robust design and the use of high quality materials assure a long life expectancy.

The way these fans work, allowing even air distribution without additional baffles and vanes, and the space-saving design, make the use of tangential fans very economic.

### FLOW PRINCIPLE

In a tangential fan, the air is drawn in over the entire length of the fan impeller. Inside the impeller, the airflow is diverted and accelerated by the vortex created by the rotation of the impeller.

The airstream then exists over the entire length of the impeller ① on the discharge side. The vortex ② separates the intake and discharge side of the fan at the narrowest point between the impeller and the vortex builder. Together with the fan scroll ③, the vortex directs the airflow. This results in an almost uniform laminar airflow over the entire outlet width of the fan.



- ① Impeller
- ② Vortex inducer
- ③ Fan scroll

### ADVANTAGES

- Uniform, extended airflow over large areas.
- Space-saving installation due to 90° or 180° airflow pattern.
- Fan length can be matched exactly to machine width.
- Airflow conditions remain the same even for wider machines (simplified design and drafting in case of modular systems).
- Fans perform well in any mounting position. Drive can be mounted on right or left hand side.
- Quiet operation due to optimised impeller and housing design.
- Long live expectancy due to robust design and location of bearings outside the hot air zone.

### APPLICATION OF LTG HIGH PERFORMANCE TANGENTIAL FANS

Agricultural technology, air conditioning technology, apparatus engineering, automotive industry, bakery technology, biomedical industry, buildingmaterial industry, chemical industry, cleaning technology, control panel technology, dedusting technology, drying technology, electronic industry, environmental simulations, food industry, furnace technology, heat treatment technology, mechanical and plant engineering, medical technology, packaging industry, paper industry, pharmaceutical industry, power plant engineering, process engineering, railway technology, refrigeration technology, store design, surface technology, swimming pool technology, textile machinery design, tobacco industry, transportation cooling, wood industry...

### POSITION OF THE FAN

Standard arrangement is horizontal. With vertical arrangement the drive motor has to be at the bottom.

### INSTALLATION AND START UP

Fix the fans to a plane base frame without any distortion. For the fixation use only the bolt holes in the side elements. Make sure to observe the applicable safety codes before starting the fans.

### MOTOR ARRANGEMENT

With suction opening on top, viewed against the discharge opening, the driving motor is optional either right hand or left hand.

## TYPE GA, IMPELLER DIAMETER 25 MM



Figure: Tangential fan type GA 25 (motor right hand side)

### SERVICE CONDITIONS

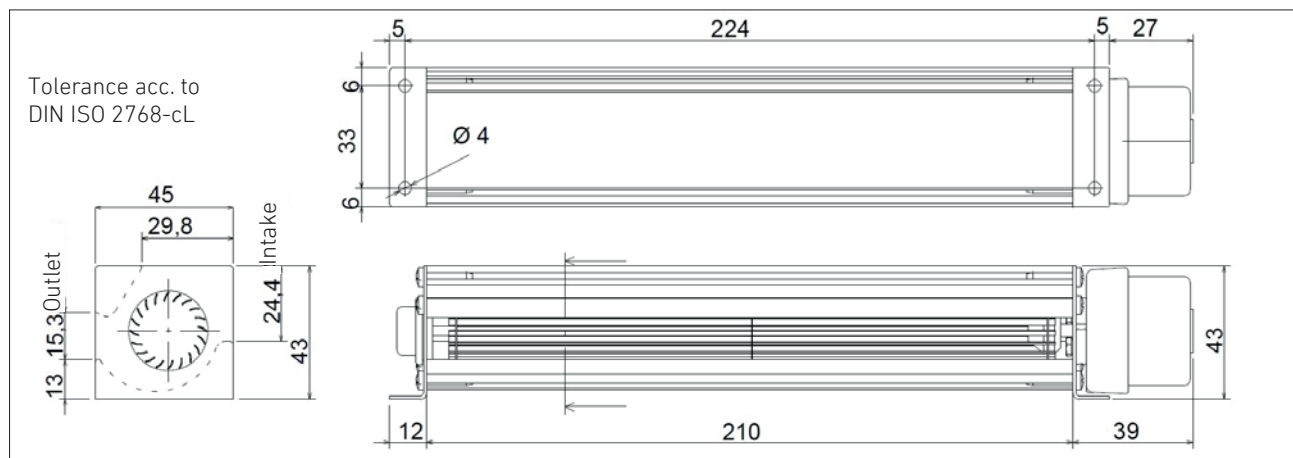
**Gas temperatures:** 0 °C up to +40 °C

**Ambient temperatures:**

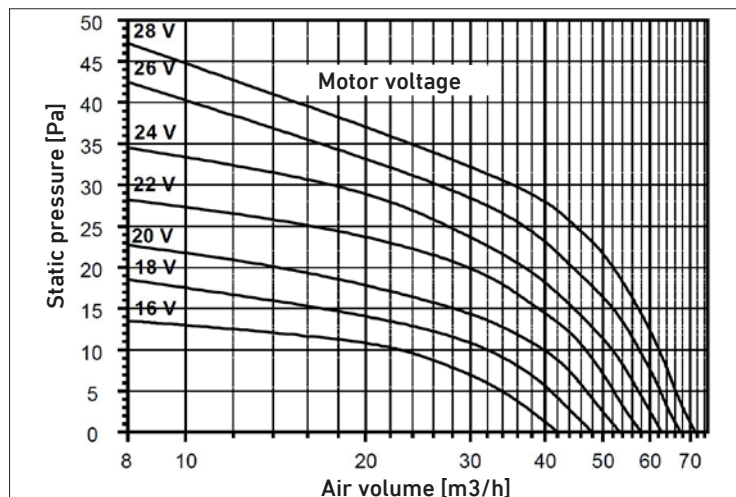
Drive side with motor: 0 °C up to +40 °C

Counter side: 0 °C up to +40 °C

### DIMENSIONS



### FAN CURVE



## TYPE TA, IMPELLER DIAMETER 40 MM



Figure: Tangential fan type TA 40 (motor right hand side)

### SPECIFICATION AND DESIGN FEATURES

Tangential fan with close coupled drive motor.

Rigid bolted corrosion proof casing impeller in aluminium.

On the drive side the impeller is supported by an elastic coupling on the motor-shaft; on the counter side in a vibration damped slide bearing. Bearing design life is 20 000 hours.

### SERVICE CONDITIONS

**Gas temperatures:** -40 °C up to +70 °C

**Ambient temperatures:**

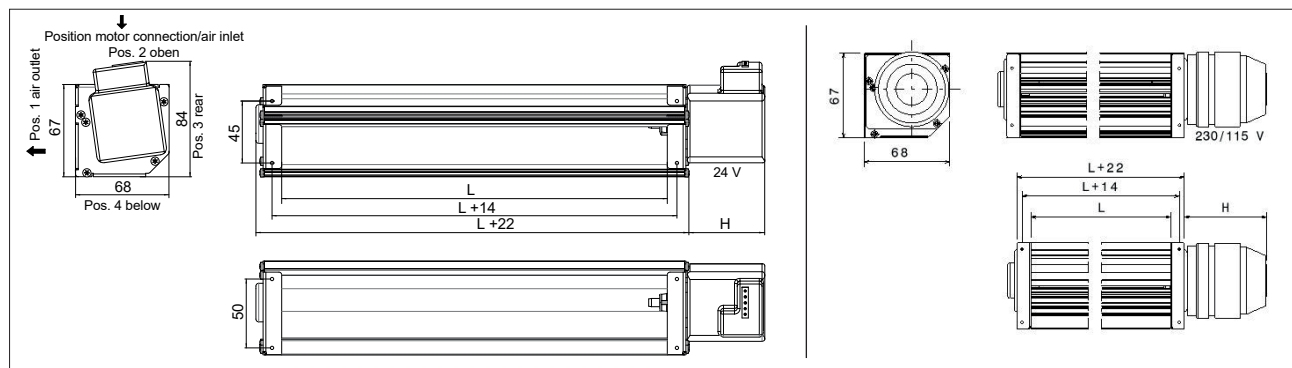
Drive side with motor: -25 °C up to +40 °C

Counter side: -40 °C up to +70 °C

### MOTOR

	AC motor		DC motor (brushless)
Nominal voltage	230 V / 50 Hz	115 V / 50/60 Hz	24 V with integral electronics
Power consumption	43 W	40/38 W	16 W
Speed	3 000 min <sup>-1</sup>	2 500 min <sup>-1</sup>	350 - 3 500 min <sup>-1</sup>
Insulation class	F		H
Protection class	IP44		IP20

### DIMENSIONS



Position Terminal box for 24 V motor:

With regard to the installation situation for fans, depending on the space available, the orientation of the motor terminal box must also be observed and communicated. If not specified, the terminal box is mounted opposite the air inlet (position 4) as standard.

### RANGE

Type	L	H		max. air volume (m <sup>3</sup> /h)	max. stat. pressure (Pa)
		230 V / 115 V	24 V		
TA 40/100	100	66	58	80	40
TA 40/160	160			110	28
TA 40/220	220			155	24
TA 40/280	280			210	29
TA 40/340	340			230	25
TA 40/400	400			260	23

## TYPE TA, IMPELLER DIAMETER 40 MM

### FAN CURVES FOR 24 V, DC

#### Test conditions for the fan curves

The indicated curves are valid for an air density of  $\rho = 1,2 \text{ kg/m}^3$  if operated with motor 24 V DC.

The rating tests were done as laboratory tests according to EN ISO 5801:2008 with unrestricted inlet and discharge.

Measuring tolerances for  $\Delta p$ :  $\pm 2 \text{ Pa}$ ;

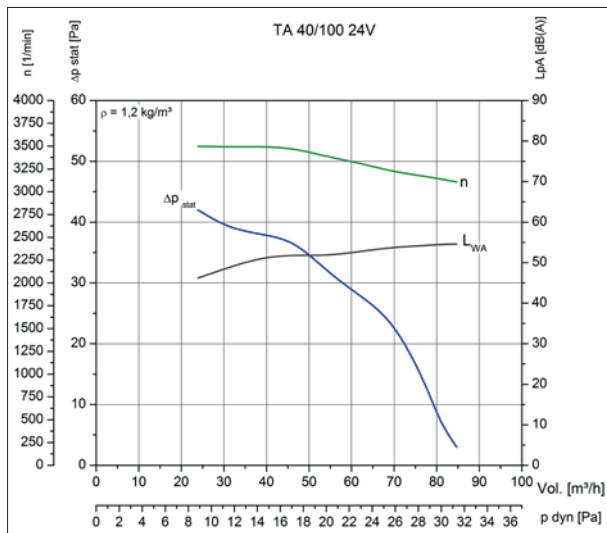
Measuring tolerances for  $L_{WA}$ :  $\pm 2 \text{ dB (A)}$

### ACOUSTICAL DATA

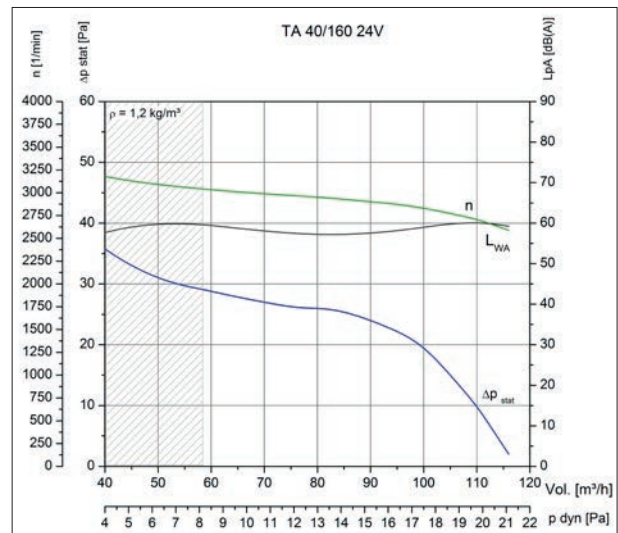
The acoustical data are for discharge side, tested in a reverberant field.

The A-weighted sound power level  $L_{WA}$  can be transformed into an A-weighted sound pressure level by the equation  $L_{pA} = L_{WA} - 10 \log S/1 \text{ m}^2$ . For this the exact total panel area  $S$  can be used.

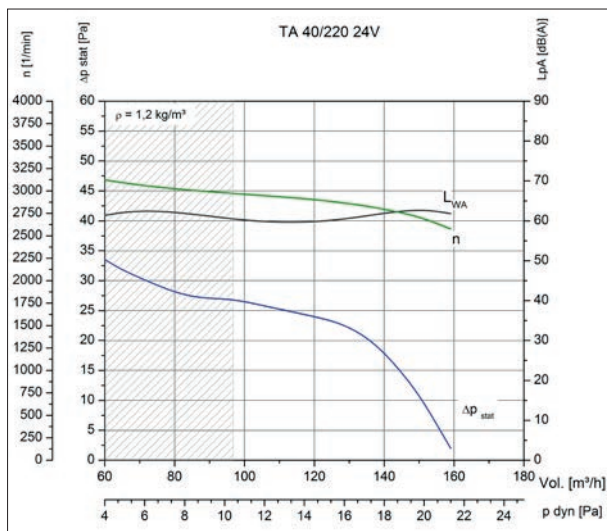
The sound pressure level in the free field in 1 m distance (full spheric sound radiation) is abt. 11 dB less than the sound power level.



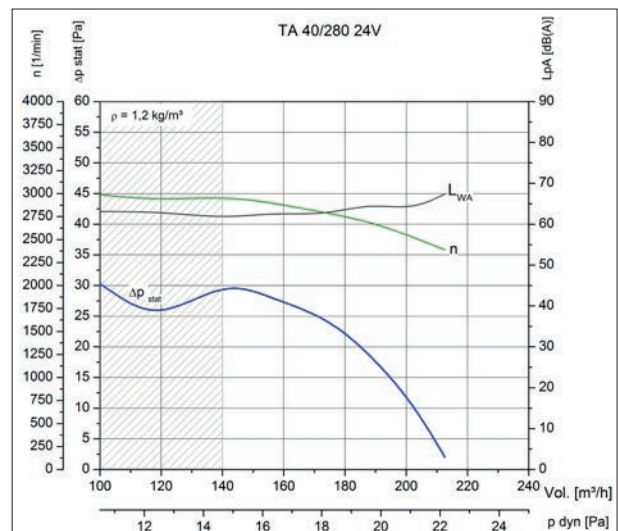
Fan curves for TA 40/100 24 V



Fan curves for TA 40/160



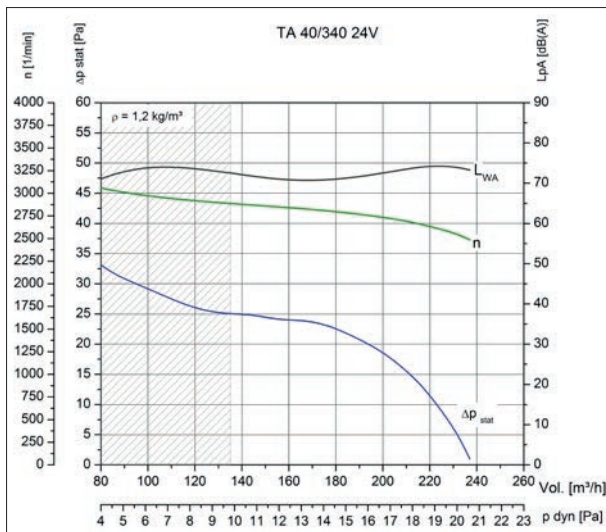
Fan curves for TA 40/220 24 V



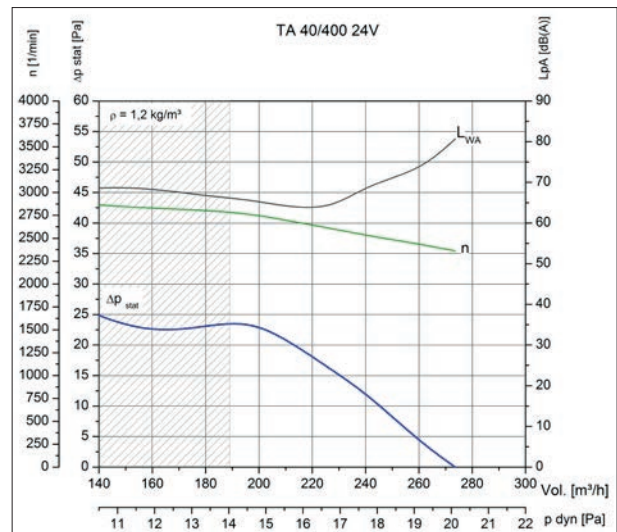
Fan curves for TA 40/280 24 V



## TYPE TA, IMPELLER DIAMETER 40 MM



Fan curves for TA 40/340 24 V



Fan curves for TA 40/400

### ELECTRICAL CONNECTIONS A/C MOTOR

Driven by single phase capacitor motor  $U = 230 \text{ V}$ ,  $f = 50 \text{ Hz}$  or  $U = 115 \text{ V}$ ,  $f = 50 \text{ Hz} / 60 \text{ Hz}$ , 4-pole version. Protection IP 44 acc. to DIN 40050: Protected against foreign bodies, protected against splash water.

The motor is completely wired to the operating capacitor and provided with terminals (protection IP 10).

### WIRING DIAGRAM

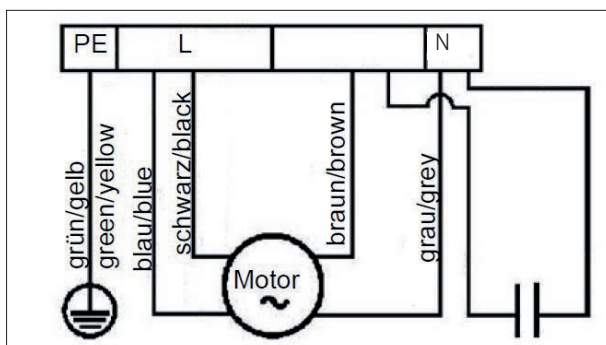


Figure: TAR 230 V / 115 V

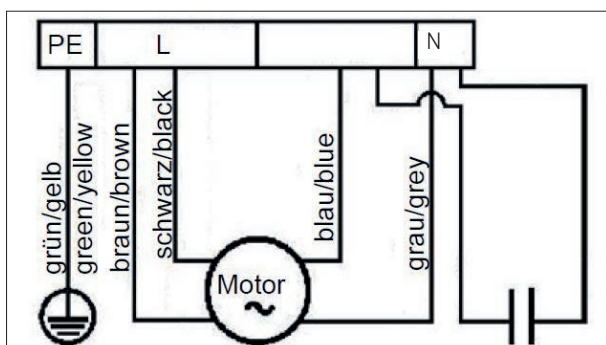


Figure: TAL 230 V / 115 V

### ELECTRICAL CONNECTIONS D/C MOTOR

The motor in the 24 V version has a connector, the mating connector housing is in the delivery included. The delivery is loose and without cable.

Over the main power supply 18-28 V DC and GND this motor is connected to the 24 V power supply.

For speed control, the control input  $U$  serves control with 0..10 V DC and GND, this signal corresponds 0..100% of engine speed.

For continuous operation at maximum speed, this input can also be optionally connected to the 24 V power supply.

Over the hall-signal, the actual speed of the motor can be read.

### WIRING DIAGRAM

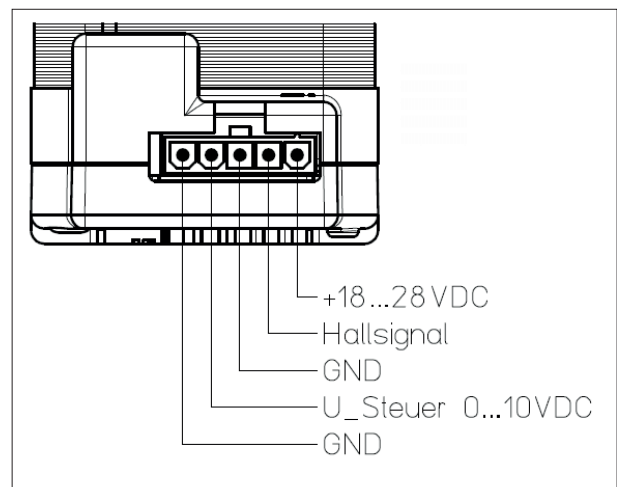


Figure: TA 24 V

**COMFORT AIR TECHNOLOGY**

Air Conditioning Systems  
Air Diffusers  
Air Distribution

**PROCESS AIR TECHNOLOGY**

Fans  
Filtration Technology  
Humidification Technology

**ENGINEERING SERVICES**

Laboratory Test & Experiment  
Field Measurement &  
Optimization  
Simulation / Expertise  
R&D & Start-up

**LTG Aktiengesellschaft**

Grenzstraße 7  
70435 Stuttgart  
Germany

Tel.: +49 711 8201-0  
Fax: +49 711 8201-720

E-Mail: [info@LTG.net](mailto:info@LTG.net)  
[www.LTG.net](http://www.LTG.net)

**LTG Incorporated**

105 Corporate Drive, Suite E  
Spartanburg, SC 29303  
USA

Tel.: +1 864 599-6340  
Fax: +1 864 599-6344

E-Mail: [info@LTG-INC.net](mailto:info@LTG-INC.net)  
[www.LTG-INC.net](http://www.LTG-INC.net)