

HIGH-VOLUME/LOW-SPEED FANS

When applying Revolution Fans for your facility, it is important to match your requirements with the fans' performance characteristics to help guide your selection.

Air Movement

Revolution Fans move the most air over the largest area at the lowest cost.

In open areas, they will move air up to 26 meters from the fan's center in all directions.

The Revolution control box incorporates a variable frequency drive which allows them to be run at the desired speed.

Cooling People

In warmer months, worker productivity and accuracy can be improved by lowering the effective temperature. Air speeds from 0.90–1.35 m/s have a cooling effect of 4°C – 6°C.

Example:

The effective temperature corresponding to 29°C and air speed of 1.50 m/s is 23°C.*

Revolution Fans used for cooling are typically operated at or close to full power.

*Health & Safety Executive, United Kingdom

Destratification

In cooler months, Revolution Fans are typically operated at lower speeds to move the warm air trapped at the ceiling downward, mixing and equalizing building temperature from floor to ceiling. The minimum air speed needed for destratification is 0.25 m/s.

Revolution Fans do not need to be run in reverse to achieve equalized temperatures.

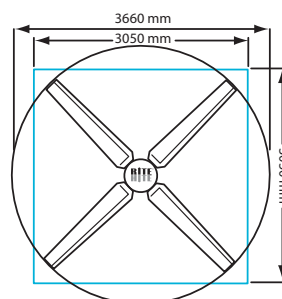
Other Applications

Air movement from the Revolution Fan can help to disperse "pockets" of humid air or higher heat caused by some manufacturing processes.

Revolution Fans can increase air circulation within a facility, helping keep floors and products drier where needed.

Other Considerations:

- ▶ Size does matter when placing Revolution Fans. Larger diameter fans will move air further down rack aisles and over some obstructions. Smaller diameter fans can be most effective in specific work areas or where installation space is limited.
- ▶ Place fans to minimize air flow obstructions and provide the greatest cooling effect for the most people.
- ▶ When possible, keep blade tips at least two fan blade lengths from walls or solid obstructions.
- ▶ Revolution Fans have minimum overhead clearance requirements based on fan diameter.
- ▶ Center fans in light or sprinkler grids when possible. (Example: a 3660 mm diameter fan fits into a 3050 mm grid.)



Revolution Fan Models

Revolution Fans are available in four and two blade models with sizes ranging in diameter from 2440 mm to 7320 mm. Each fan creates varying air speeds for the zones illustrated on the following page.

Air Movement Guidelines

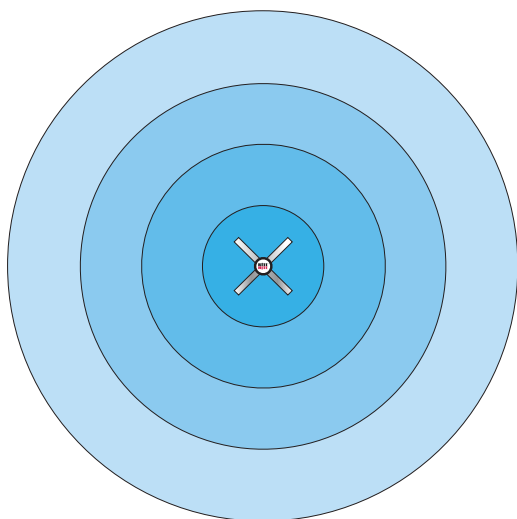
- ▶ When used for cooling people, choose a Revolution Fan that moves air a minimum of 0.90 m/s in the targeted zones.
- ▶ The minimum air speed needed for destratification is 0.25 m/s.

4-blade Revolution Fans

	7320 mm		6100 mm		4880 mm		3660 mm		2440 mm	
	Full Power	Half Power	Full Power	Half Power	Full Power	Half Power	Full Power	Half Power	Full Power	Half Power
Zone 1	3.05 meters per second	1.25	2.55	1.25	2.64	1.39	2.15	1.39	2.01	1.03
Zone 2	1.97	0.85	1.52	0.76	1.79	0.76	1.25	0.49	1.03	0.36
Zone 3	1.30	0.63	1.21	0.63	1.21	0.49	1.03	0.36	0.90	0.27
Zone 4	1.03	0.36	0.94	0.36	0.94	0.27	0.90	NA	0.72	NA

2-blade Revolution Fans

	7320 mm		6100 mm		4880 mm		3660 mm		2440 mm	
	Full Power	Half Power	Full Power	Half Power	Full Power	Half Power	Full Power	Half Power	Full Power	Half Power
Zone 1	2.10 meters per second	0.72	1.61	0.67	1.52	0.63	1.34	0.63	1.03	0.49
Zone 2	1.12	0.49	1.07	0.49	0.72	0.49	0.67	0.49	0.49	0.36
Zone 3	1.03	0.49	1.03	0.49	0.67	0.40	0.67	0.27	0.36	0.27
Zone 4	0.49	0.27	0.49	0.27	0.49	0.27	0.36	NA	0.27	NA



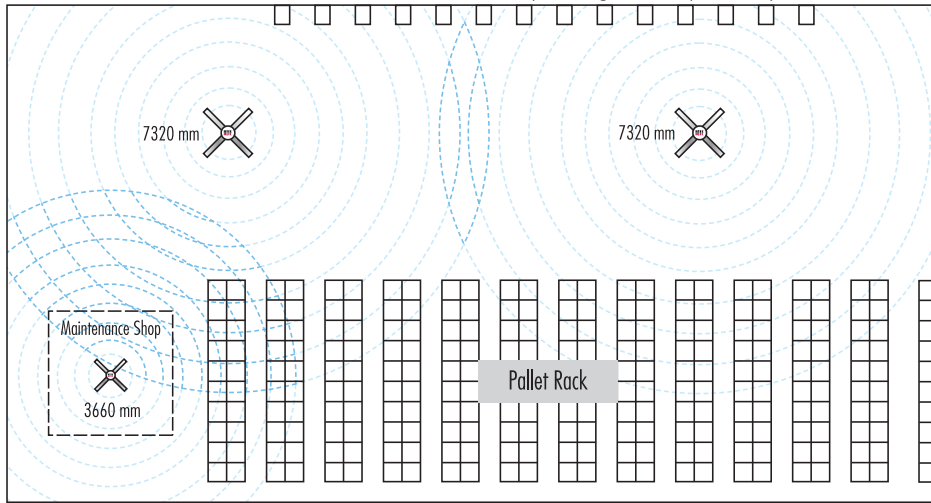
Results based on the following:

- Air speeds are the average velocity for each fan and zone.
- Air speeds were measured 1220 mm from the floor.
- Fans were mounted 9150 mm above the floor.

- Zone 1 – 6.1 m from fan center (116 m²)
- Zone 2 – 12.2 m from fan center (465 m²)
- Zone 3 – 18.3 m from fan center (1023 m²)
- Zone 4 – 26.0 m from fan center (2046 m²)

Warehouse

(Drawing is conceptual only and not to scale.)



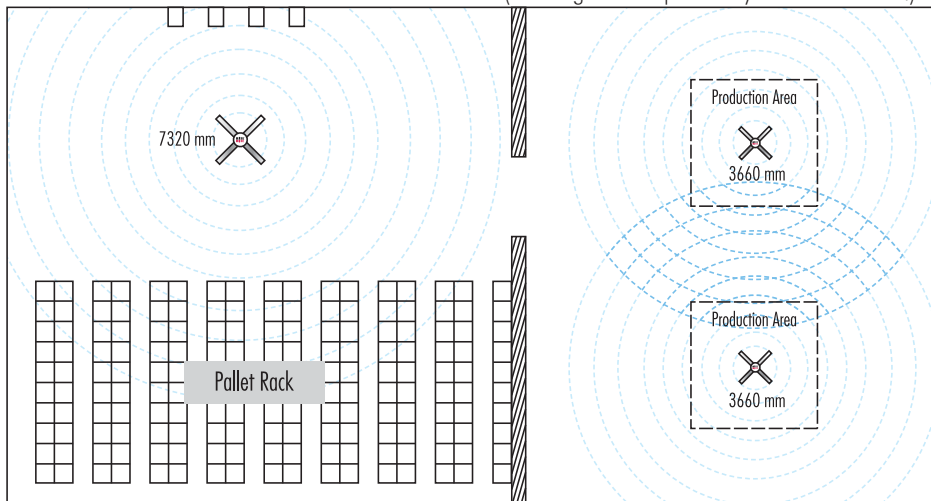
45 m

So which fan is right for my facility?

This information is meant to help you select the Revolution Fan that is best for your needs. Your local Rite-Hite Representative can work with you to evaluate your specific application.

Manufacturing with shipping and receiving

(Drawing is conceptual only and not to scale.)



90 m

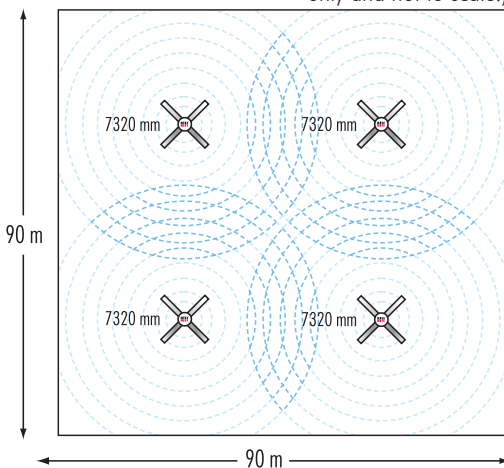
Join the Revolution!

The best way to experience how a Revolution Fan can impact your facility is by installing one.

Rite-Hite's Exclusive Trial Program and One-Year Customer Satisfaction Money-Back Guarantee make it easy!

Wide-open area*

(Drawing is conceptual only and not to scale.)



		Open Area Fan Requirements*				
		Width				
		30 m	60 m	90 m	120 m	150 m
Length	30 m	1	1 or 2	2	2 or 3	3
	60 m	1 or 2	2	2 or 3	3 or 4	4 or 5
	90 m	2	2 or 3	4 or 5		
	120 m	2 or 3	3 or 4			
	150 m	3	4 or 5			

*Grid and chart based on 9150 mm ceiling heights and 7320 mm diameter fans. Fans in open areas may cover up to 26 meters from the fan's center in all directions.

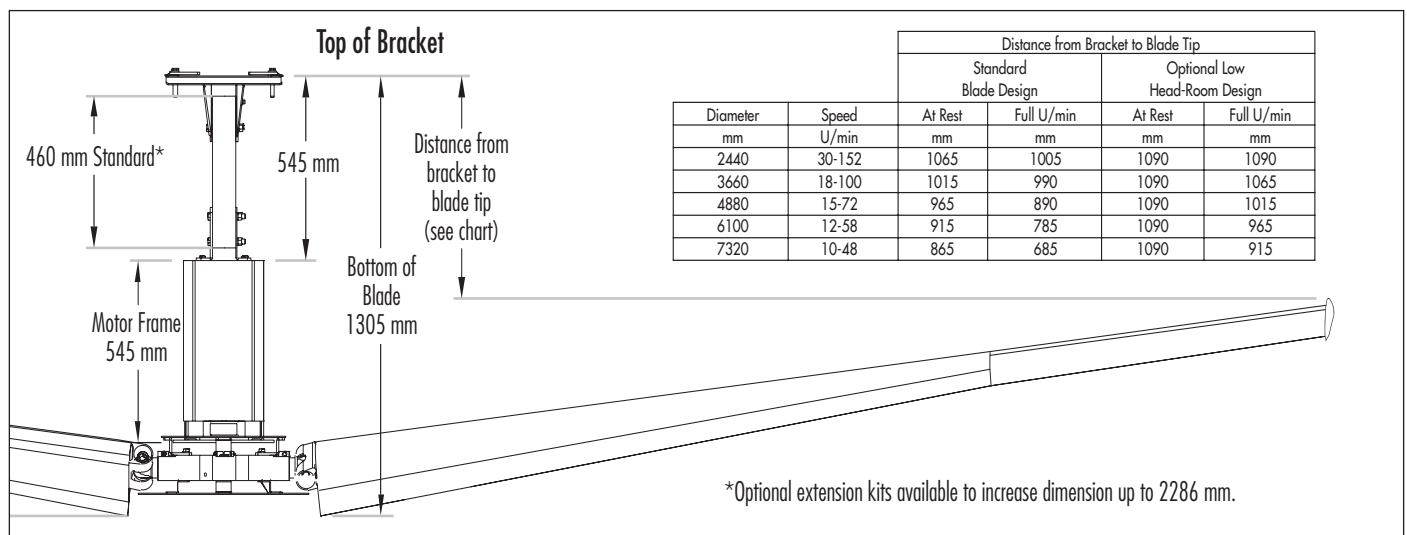
The following standards are commonly used for the purpose of comparing and applying HVLS fans:

ANSI/AMCA STANDARD 230-07 (230-07 supersedes 230-99) Laboratory Methods of Testing Air Circulating Fans for Rating and Certification. This standard has the following scope: "This standard may be used as the basis for testing air circulator fan heads, ceiling fans, box fans, table fans, and portable personnel coolers, or other air circulating devices when air is used as the test gas."

Revolution Fans tested to ANSI/AMCA standard 230-07 ^		
	4-blade fans	2-blade fans
Fan Diameter	Full Power Airflow m³/s ~	Full Power Airflow m³/s ~
7320 mm	202.02 m³/s	120.36 m³/s
6100 mm	188.80 m³/s	113.28 m³/s
4880 mm	172.28 m³/s	106.20 m³/s
3660 mm	168.50 m³/s	99.12 m³/s
2440 mm	139.24 m³/s	89.68 m³/s

^ With a mounting height of 5435 mm from the ground.
 ~ Airflow m³/s is determined by a math formula that incorporates the thrust and size of the fan.

Mounting dimensions and guidelines



- The Revolution Fan blades move upward to their operating position by the combination of centrifugal force and air pressure.
- Allow 305 mm additional clearance from obstructions whenever possible.
- Revolution Fans require open area over the fan blades for proper air intake. Failure to account for this will result in limited air movement.
- Custom brackets available; consult factory for details.



CAEMA Verladesysteme GmbH
 Carl-Zeiss-Strasse 3
 34471 Volkmarsen
 Germany
 Tel. +49 (0) 5693 9870-0
 Fax +49 (0) 5693 987020

www.caema-ritehite.com

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Rite-Hite Corporation
 8900 North Arbon Drive
 Milwaukee, WI 53223
 USA
 Tel. +1 (414) 355 2600
 Fax +1 (414) 355 9248

www.ritehite.com



Caljan Rite-Hite ApS
 Ved Milepaelen 6-8
 8361 Hasselager
 Denmark
 Tel. +45 8738 7800
 Fax +45 8738 7801

www.caljanritehite.com