

Chore-Time® Fan Guide

For Tunnel and Other Applications



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Metric

Patented with
Additional Patents Pending

Chore-Time's High-Performance Tunnel Fans

Diameters available through 145 cm (57 inches)

- ENDURA® Fans offer an industry-leading combination of outstanding performance and strategic material selection.
- TURBO® Fans feature a sturdy, reinforced-fiberglass housing, a heavy cast-aluminum blade and corrosion-resistant components.
- CHORE-TIME® Galvanized Fans provide performance at a value price.



Count on Chore-Time for
experience, reliability,
performance and confidence.

ENDURA® Tunnel Fans

Chore-Time's 145-cm (57-Inch) ENDURA® Fan with HYFLO® Shutter features an industry-leading combination of outstanding performance and strategic material selection.

Fan Performance

- Chore-Time's Energy-Efficient, Standard-Mount ENDURA® Fan **could save 14% or more in energy costs** compared to Chore-Time's own great-performing 137-cm (54-inch) High-Capacity Fan, often while using the same number of fans!
- Motors are selected for each fan model to optimize its performance efficiency. Extensive motor testing is completed in our on-site wind tunnel under various operating conditions.
- All components were designed to maximize overall fan efficiency.

Shutter Performance

- Chore-Time's HYFLO® Shutters do not suffer the typical 12-15% loss of efficiency and airspeed typical of dirty louver-style shutters, **so airspeed is maintained to the end of the flock, when you need it most.**
- HYFLO® Shutters improve fan performance by minimizing obstructions during fan operation. They deliver up to 10% more air than traditional shutters, with 75% less opportunity for air to leak through.



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Standard Mount

The standard-mount model of Chore-Time's ENDURA® Fan offers the best performance and easiest installation.

Exceptional Materials

- Durable long glass fiber composite shroud and HYFLO® Shutter Doors contain 35% fiberglass for strength and to limit expansion and contraction.
- Galvanized, powder-coated fan drive, support structures and flush-mount box. Optional stainless steel fan blade and shaft.

Durability

- Extensive durability testing under both extreme high and extreme low temperatures.
- Automatic belt tensioner uses an idler arm and pulley to provide constant belt tension.
- Rugged air-handler bearings are shielded from dust and moisture. They are also self-aligning, prelubricated and include a zerk fitting.
- Aerodynamic three-wing, heavy-duty fan blade.

Adaptability

- Can be installed 152.4 cm (60 inches) on center for new construction and will fit over openings for many 122-through 137-cm (48- through 54-inch) fans for retrofit.
- Black HDPE (high-density polyethylene) cone aids in light control.
- Capable of variable speed operation with the use of a variable frequency drive.



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Flush Mount

The flush-mount ENDURA® fan eliminates obstructions inside the poultry house. Mount over or through the wall.



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TURBO® Fiberglass Tunnel Fans

Available in 132- and 122-cm (52- and 48-inch) Models

- Sturdy, corrosion-resistant fiberglass housing with heavy cast-aluminum blade, aluminum motor mounts and corrosion-resistant components.
- Motors are selected for each fan model to optimize its performance efficiency. Extensive motor testing is completed in our on-site wind tunnel under various operating conditions.
- Impact-resistant, polyethylene cone.
- Automatic belt tensioner uses arm and pulley arrangement to provide consistent belt tension.
- Heavy-duty, cast iron, air-handler type bearings are self-aligning, pre-lubricated and include a zerk fitting, as well as being shielded from moisture and dust.
- Fans are shipped fully assembled with shutter attached. At installation, simply attach fan to house sidewall, add the cone and snap grill in place. Unit installs flush on inside of house.
- Chore-Time's 132-cm (52-inch) TURBO® Fans come with HYFLO® Shutter Doors, while the 122-cm (48-inch) model comes with a louver shutter.
- Backed by Chore-Time's generous extended warranty, including limited lifetime coverage for housing and blade, three years on shutter and cone, and two years on motor and bearings. (See Chore-Time's full written warranty for complete warranty details.)

Choose black or white for housing interior and cone. Housing exterior is white.



CHORE-TIME® Galvanized Tunnel Fans

Available in 137-, 132- and 122-cm (54-, 52- and 48-inch) Models

137-cm (54-Inch) Galvanized Tunnel Fans

- Easily replace older, inefficient 122-cm fans with Chore-Time's 137-cm Galvanized Tunnel Fan and get 30-35% more airflow without the need to reframe sidewalls. Mount using existing 122-cm or 132-cm framing.

All Galvanized Tunnel Fans

- Factory assembled using rugged, galvanized steel panels with screw fasteners and a galvanized steel blade.
- Chore-Time specifically selects the motor for each fan model to optimize its performance efficiency. Motors are then extensively tested in our on-site wind tunnel under various operating conditions.
- Automatic belt tensioning system uses an idler arm and pulley to maintain constant optimum belt tension on the fan's easy-to-change belt.
- Heavy-duty, cast iron, air-handler type bearings are self-aligning, pre-lubricated, and include a zerk fitting, as well as being shielded from moisture and dust.



Chore-Time's HYFLO® Shutter improves fan performance by minimizing obstructions during fan operation. Standard on 137-cm galvanized fans. Option of HYFLO® Shutter or louver shutter on 132- and 122-cm models.

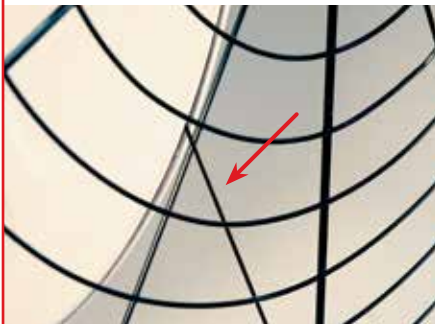


Chore-Time's high-capacity 145-cm (57-inch) diameter ENDURA® Fan with HYFLO® Shutter delivers more air with fewer fans – 51,600 m³/hour @ 25 Pa of static pressure in independent wind tunnel tests.

HYFLO® Shutters for Tunnel Fans

Chore-Time's HYFLO® Shutter improves fan performance by minimizing obstructions during fan operation. Available on Chore-Time's Composite, Fiberglass and Galvanized Tunnel Fans and 91-cm (36-Inch) Galvanized Minimum Ventilation Fans.

- Delivers up to **10% more air** than traditional shutters.
- **75% less opportunity for air to leak** through compared to a traditional louver shutter.
- Does not suffer the typical 12-15% loss of efficiency and airspeed typical of dirty louver-style shutters, so **airspeed is maintained over time**.
- The HYFLO Shutter consists of **only two moving parts** for greater reliability and easier cleaning.



Cable attachment allows HYFLO® Doors to float left or right together for maximum efficiency.



Shutter's unique springs draw the doors closed when fan is not in operation.



HYFLO® Shutter doors are pushed open as air is exhausted when fan operates.

Variable Speed Fans Can Replace Minimum Ventilation Fans

Chore-Time's 145-cm (57-Inch) ENDURA® Fan with HYFLO® Shutter at 58% Typical 91-cm (36-Inch) Minimum Ventilation Fan

23,280 m ³ /hr	16,990 m ³ /hr
75 m ³ /hr/Watt	28.9 m ³ /hr/Watt

Running tunnel fans at reduced capacity using Chore-Time's Variable Frequency Drive can save significant energy compared to running small fans continuously.





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Variable Speed Fans

CHORE-TIME® 145-, 137-, 132- and 122-cm Fans* with HYFLO® Shutters

*Variable speed option available for certain fan models – see table on page 8.

The Energy-Efficient Way to Smooth House Temperature and Airflow Changes

- Have you ever noticed excessive fan cycling?
- Have your young birds experienced chilling or increased mortality from excess airflow?
- Are you concerned about energy efficiency on your small minimum ventilation fans?

Chore-Time's variable speed fan option offers a solution to these problems and an improved environment for your birds.

Features and Benefits

- Improve the environment for your birds by using Chore-Time's Variable Speed Fan to smooth the house's airflow and temperature curves.
- Gain efficiency with impressive CFM/watt during ramp-up and ramp-down periods.
- Reduce framing costs for new construction or retrofitting by adding a Variable Speed Kit to a tunnel fan instead of installing a small fan.
- Inexpensively add variable speed capability to existing houses by converting existing tunnel fans to variable speed.

Get Better Temperature Control and Energy Savings with Chore-Time's Variable Speed Fans

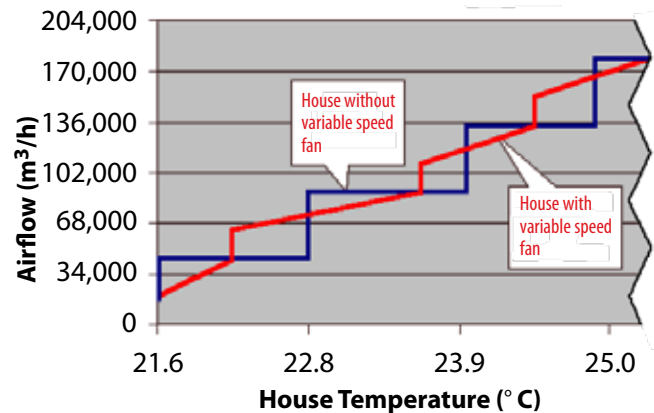
Control Setting	Fan Performance at 25 Pa Static Pressure	
67% (40 Hz)	21,700 m ³ /h	46.6 m ³ /h/Watt
83% (50 Hz)	35,500 m ³ /h	44.9 m ³ /h/Watt
100% (60 Hz)	44,900 m ³ /h	37.4 m ³ /h/Watt

Example features Chore-Time's 145-cm (57-Inch) ENDURA® Fan with HYFLO® Shutter, Part No. 53464-42. Contact Chore-Time for performance data for additional fan models.

Bess Lab Test No. 12620



Airflow CFM with & without Variable Speed Fan



Using Chore-Time's Variable Speed Fans smooths airflow and temperature efficiently and creates a better bird environment.

Chore-Time's Variable Speed Fans Smooth the Airflow and Temperature in the House

1. Using your CHORE-TRONICS® 3 Control and one or more Variable Frequency Drives, the fans equipped with variable speed capability come on briefly at 100% to open the shutter, then drop back to the minimum speed setting.
2. The fans gradually accelerate to 100% (based on house temperature) until the first tunnel fan comes on. They then drop back to the minimum speed setting again and begin ramping up as the house temperature increases. This process can be repeated until all tunnel fans are on.
3. By increasing (and decreasing) airflow gradually, Chore-Time's Variable Speed Fans help smooth out both airflow and temperature during the period before and after full tunnel operation.



Chore-Tronics® 3 Controls are capable of handling multiple variable speed fans.



Chore-Time® Variable Frequency Drive

Air Circulating Fans, Louvers and Fan Accessories

Air Circulating Basket Fan

- Mixes air for more even house temperatures.
- Direct-drive motor.
- Sealed ball bearings.
- Automatic thermal overload protection.
- Polyvinyl-coated heavy-duty guard for superior corrosion resistance.
- "L"-shaped ceiling mount bracket provided with fan.



51-cm (20-Inch) Diameter Basket Fan with Ceiling Mount Bracket

Basket Fan Specifications Chart

Part No.	Diameter	Motor	Electricity
51702	51 cm (20 inch)	1/10 HP 1725 RPM	115/230V 1 Ph
50576	61 cm (24 inch)	1/2 HP 1725 RPM	115V 1 Ph
50576-230	61 cm (24 inch)	1/2 HP 1725 RPM	230V 1 Ph

Box and Panel Fans

Box fans are available in 61-, 91- and 122-cm diameters with metal framing in direct drive. Wood framing is available for the 61- and 91-cm fans. Belt drive is available for the 91-cm fans.

Panel fans are available without framing in 91-cm diameter in belt or direct drive, and in 122-cm diameter direct drive.



Chore-Time's 91-cm Direct-Drive Box Fans deliver 18,650 m³/h and 27.9 m³/h/Watt at 0.00 static pressure.

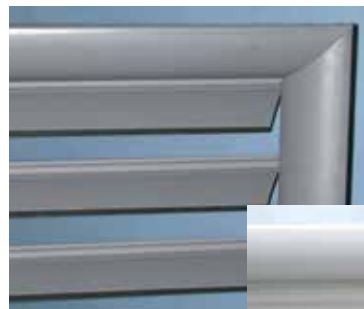
Louver Shutters

Chore-Time's Louver Shutters are offered on its 132-cm (52-inch) and smaller fans. Some models come with a more aerodynamic "belled" frame (shown below), while others come with a flat frame. Louver shutters are available in white or gray.

Cone Covers



Help seal out drafts during cold weather with optional cone covers made of vinyl-coated, ultraviolet-resistant fabric. Available for all sizes of Chore-Time cone fans.



Flexible louver edge helps seal the fan's opening.



Belled shutter has a curved, aerodynamic frame.

Fan Selection and Maintenance Recommendations



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The materials from which today's poultry house equipment is made have not changed, but the poultry house environment has. Proper equipment selection and maintenance has never been more important.

Poultry houses tend to have more moisture, ammonia and chemicals than in years past.

- Houses are more air tight.
- Rising fuel costs lead to underventilation.
- Advanced litter treatments permit more dampness and ammonia on floors.

Without curtains, all moisture must be removed by power ventilation.

- Using tunnel fans to exhaust air from the brood chamber introduces hot humid air in the grow-out area.
- Increased amounts of ammonia exhausted through fans can cause extensive damage.

During cool weather, the combination of hot, humid air and cold surfaces can lead to condensation.

- Condensation on galvanized metal can result in corrosion and serious damage.
- The problem of corrosive chemicals in the house is compounded if chemicals are allowed to come into contact with wet equipment.



Best Practices for Bird Health and Equipment Life

Reduce Moisture in the House

- Follow minimum ventilation standards based on birds' age.
- Maintain relative humidity in the house below 70%.

Limit the Effects of Corrosive Elements

- Maintain fans properly.
- Remove surface dust and dirt from fans between flocks.
- When cleaning fans, don't leave standing water on metal surfaces.
- Avoid direct contact of chemicals with equipment.

Choose Fans Wisely

- Consider whether the fan is made of heavy-duty, corrosion-resistant materials.
- Evaluate the warranty and the company behind it.
- Contrast the fan's performance and energy usage with its cost and life expectancy.

Fan Selection Comparison

Chore-Time® Fans	132-cm Fiberglass	137-cm Galvanized	145-cm Composite
CFM	Good	Better	Best
CFM/Watt	Good	Better	Best
Corrosion Resistance	Best	Good	Best
Warranty	Best	Good	Better



Chore-Time® Belt-Drive Cone Fans for Tunnel Ventilation

Chore-Time recommends considering both capacity (m³/h) and performance (m³/h/Watt) when selecting a fan. Your best balance of energy savings and air speed may come from mixing high-capacity and energy-efficient fan models.

Size	Mat.	Mount	Shutter	Type	Fan P/N	25 Pa Static Pressure		50 Pa Static Pressure		Air Flow Ratio	Bess Lab Test No.	230 V Power
						m ³ /h	m ³ /h/Watt	m ³ /h	m ³ /h/Watt			
145 cm (57 in)	Comp.	Standard	HYFLO®	High-Cap.	53464-21*	51,600	34.7	43,800	26.5	0.80	12615	60 Hz 1 Ph
	Comp.	Standard	HYFLO®	High-Cap.	53464-41*	51,100	35.6	42,700	26.5	0.79	12616	60 Hz 3 Ph
	Comp.	Flush Mount	HYFLO®	High-Cap.	54659-21*	50,200	32.7	42,200	24.8	0.79	13592	60 Hz 1 Ph
	Comp.	Standard	HYFLO®	High-Cap.	53464-51*	50,100	35.3	41,600	26.5	0.78	12617	50 Hz 3 Ph
	Comp.	Flush Mount	HYFLO®	High-Cap.	54659-41*	49,600	33.4	41,000	24.9	0.78	13566	60 Hz 3 Ph
	Comp.	Flush Mount	HYFLO®	Energy-Eff.	54659-51*	49,000	33.3	40,200	24.8	0.77	13567	50 Hz 3 Ph
	Comp.	Standard	HYFLO®	Energy-Eff.	53464-22*	46,100	39.1	38,400	29.1	0.78	12614	60 Hz 1 Ph
	Comp.	Standard	HYFLO®	Energy-Eff.	53464-42*	45,600	39.6	38,200	29.7	0.78	12619	60 Hz 3 Ph
	Comp.	Standard	HYFLO®	High-Cap.	53464-52*	45,100	38.9	37,200	29.0	0.77	12618	50 Hz 3 Ph
	Comp.	Flush Mount	HYFLO®	Energy-Eff.	54659-22*	44,900	36.8	37,200	27.4	0.77	13591	60 Hz 1 Ph
	Comp.	Flush Mount	HYFLO®	Energy-Eff.	54659-42*	44,700	37.6	36,700	27.8	0.77	13569	60 Hz 3 Ph
	Comp.	Flush Mount	HYFLO®	Energy-Eff.	54659-52*	44,200	37.3	36,000	27.4	0.76	13568	50 Hz 3 Ph
	Comp.	Standard	HYFLO®	Min.-Vent.	53464-23	36,000	41.7	27,900	29.3	0.71	17224	60 Hz 1 Ph
137 cm (54 in)	Galv.	Standard	HYFLO®	High-Cap.	52157-21	49,100	33.0	41,800	25.3	0.80	09080	60 Hz 1 Ph
	Galv.	Standard	HYFLO®	High-Cap.	52157-51	47,900	33.8	39,900	25.5	0.78	09084	50 Hz 3 Ph
	Galv.	Standard	HYFLO®	Energy-Eff.	52157-22	43,800	37.4	36,900	27.9	0.78	09081	60 Hz 1 Ph
	Galv.	Standard	HYFLO®	High-Cap.	52157-52	42,800	37.7	35,700	28.4	0.77	09085	50 Hz 3 Ph
132 cm (52 in)	Fiber.	Standard	HYFLO®	High-Cap.	49740-21	47,100	31.1	40,100	25.2	0.79	04312	60 Hz 1 Ph
	Galv.	Standard	HYFLO®	High-Cap.	49519-21	46,400	30.6	38,600	23.4	0.78	05188	60 Hz 1 Ph
	Galv.	Slant-Wall	Bell Louver	High-Cap.	48319-215	44,700	29.1	37,900	23.3	0.80	05197	60 Hz 1 Ph
122 cm (48 in)	Fiber.	Standard	Bell Louver	High-Cap.	47898-4825	42,500	27.7	37,000	22.9	0.83	02473	60 Hz 1 Ph
	Galv.	Standard	HYFLO®	High-Cap.	49515-21	38,600	30.6	31,900	22.9	0.76	04327	60 Hz 1 Ph
91 cm (36 in)	Fiber.	Standard	Flat Louver	Standard	38589-3622	19,000	28.9	16,000	22.6	0.79	96199	60 Hz 1 Ph
	Galv.	Standard	HYFLO®	Standard	50372-22 ⁺	15,600	32.1	12,800	23.8	0.76	06241	60 Hz 1 Ph

*Add an "S" to the part number for a stainless steel blade and shaft. ⁺Direct-drive fan.

KEY: Mat.=Material; Comp.=Composite; Galv.=Galvanized; Fiber.=Fiberglass

A variable frequency drive option is available for the following 3-phase fan models:

- 145-cm composite energy-efficient fans
- 137-cm and 132-cm galvanized energy-efficient fans
- 132-cm fiberglass energy-efficient and high-capacity fans
- 122-cm fiberglass energy-efficient fan with special motor

This is a sampling of the many fan sizes, models and configurations that Chore-Time offers. Additional electrical specifications also available. Contact your local authorized Chore-Time distributor for details on any fans not shown here.



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www.choretime.com

Chore-Time is a division of CTB, Inc.
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