Tempest S-Series Cyclone Dust Collection Systems



Thank you for purchasing one of PSI's growing family of woodworking products. Our Tempest cyclone systems are engineered and manufactured to the highest standards of quality. You will find the Tempest to be a remarkable dust collection machine.

Warranty

This product is warranted against defects in material and workmanship for a period of five years on the motor and all other components. This warranty applies to the original purchaser of the product and is limited to the repair or replacement of the product or its parts at the discretion of PSI Woodworking Products. Excluded are parts which have been misused, abused, altered, or consumed by normal operation of the machine. The Tempest is warranted for the collection of wood dust only.

Also excluded are direct or consequential damages to persons, properties, or materials. Your invoice serves as proof of purchase and must be referenced to authorize warranty repairs. Call your dealer for proper authorization. Owner is responsible for returning warranty service parts at their expense. Defective parts will be repaired or replaced at the manufacturer's discretion.

Safety

- Do not use this system near flammable or combustible liquids or gases including gasoline or other fuels, cleaners, oil-based paints, natural gas or explosive dusts like coal dust, magnesium, grain dust, or gun powder.
- Do not vacuum anything that is burning or smoking such as cigarettes or hot ashes.
- Do not vacuum toxic materials or use near hazardous materials.
- Do not use outdoors or on wet surfaces.
- Do not operate with a full waste container.
- To avoid collapse, use twenty-six gauge steel or thicker for ductwork. Twenty-four gauge metal or thicker is prefered for 3.5HP and 5.0HP units.
- Install on a stable level surface. If assembled on a stand, make sure the base and supporting structure is stable.
- Do not use without filter bag or canisters attached.
- Turn off controls before unplugging. Do not pull cord to unplug, grasp plug and remove from receptacle.
- Do not operate with the motor/blower off of the cyclone- this could cause severe overheating and/or motor burnout.
- Do not use with damaged cord, plug, or other parts. Only install to a properly grounded outlet.
- Do not wear loose clothing in the area of any inlets because high suction could pull and stretch garments into blower
- If your ductwork consists of only plastic hose or pipe, ground hose or pipe by wrapping bare copper wire around the exterior surface and ground the wire at either end.
- Keep hands free from spinning impeller.

Features

- Powerful motor blower unit has a proven flawless performance record
- Able to capture over 99.9% of all dust and debris before it passes through the motor blower
- 1/2- micron filter cartridges for fine filtration
- Includes wall support brackets and refuse drum
- Simple operation and easy cleaning of debris from the collection canister
- With nearly clean filters, system consistently runs at peak performance
- Aluminum impellers provide superior performance
- "Neutral vane" intake maximizes airflow.
- Longer cyclone funnel improves separation efficiency
- Includes convenient heavy-duty on/off switch on power cord
- Designed to fit under 8 ft. ceiling (with 21" fiber drum).
- Includes 7" to 6" intake adapter

Specifications

	TEMP1425S	TEMP1535S	TEMP1550S
VAC, Max Amps	220V, 13 Amp	220V, 19 Amp	220V/440V, 13 Amp, 3-phase
HP	2.5 HP	3.5 HP	5.0 HP
CFM Free Air*	2300 CFM	2500 CFM	2600 CFM
Max Static Pressure	12.5"	14.25"	14.25
Impeller Diameter	14", 8-fin aluminum	15", 8-fin aluminum	15", 8-fin aluminum
Sound	75 Db	75 Db	75 Db
Gauge of Cyclone Body	17 ga	17 ga	17 ga
System Weight	207 lbs	244 lbs	252 lbs

*refer to fan curve for CFM through cyclone

Contents	
Warranty	2
Safety	2
• Features	2
Specifications	2
Components	3
Assembling Cyclone	4
• Assembling Filters	5
• Filter Maintenence	5
 Installation 	
and Operation	6
Accessories	7
Parts List	8

16 14 12 STATIC PRESSURE INCHES OF WATER 10 remp1550S 8 6 TFMP 4 TFMP142 2 0 300 600 900 1200 1500 1800 AIRFLOW - CEM

Static Pressure Vs. Air Flow

(Typical performance - Actuals may vary)

Tempest S-Series Cyclone Dust Collection Systems

Components

1) Motor blower unit: DC14MB25HP for TEMP1425S DC15MB35HP for TEMP1535S DC15MB50HP for TEMP1550S

2) Cyclone assembly consisting of:

- top cylinder incl. hardware (hR- see fig. 2A)
- 8 ea. pan head screws to connect cylinder to motor blower (hS)
- bottom cone
- center vortex tube incl. hardware (hP)
- gasket
- two screw-mount wall brackets incl. hardware (hQ)
- 7" to 6" adapter
- neutral vane tube
- two bottom support brackets incl. hardware (hP)
- 3) Drum kit consisting of:
 - 26 gal fiber drum
 - 2 ea. 7" hose clamps
 - 1 ft. of 7" diameter hose
 - 7" diameter flange incl. hardware (hP)
- 4) Filter Packs:
 - TEMP1425S
 - 2ea. 26" filter (CYFA) 1ea. metal cleanout can (CYFILCAN4)

• 2ea. 6" hose clamp (DBC6)

• 1ea. bell mouth (CYATT6)

• 4ft. clear plastic hose

• 1ea. plastic blast gate

(CYH142CC)

- TEMP1535S / TEMP1550S
- 2ea. 36" filter (CYF36)
- 1ea. metal cleanout can (CYFILCAN4 / CYFILCAN2)
- 2ea. 7" hose clamp (DBC8)
- 1ea. bell mouth (CYATT7)
- 4ft. clear plastic hose
 - (CYH15)
- 1ea. metal blast gate for TEMP1535S







fig. 2A - Hardware Breakdown



Tempest S-Series Cyclone Dust Collection Systems

Assembly

To make the assembly easier, it is suggested that the entire unit be assembled, on the floor, to a sheet of 3/4" plywood and carefully lifted into place. Prior to assembly, determine where the cyclone will be located in your shop and the direction of the intake and outtake ports.

- Align the screw holes on the vortex tube (D) with the screw holes at the top of the upper cyclone body (B) and secure with three bolts, washers, nuts, (hP) and a bead of silicone caulk. Make sure the bolts are oriented downward from the top of the upper cyclone body. The washers and nuts will be protruding below the three holes of the vortex pipe (D), TIGHTEN. Failure to correctly orient these fasteners may result in damages to the motor blower.
- 2) The motor blower can be rotated on the upper body to match your ductwork layout needs. Once this has been determined, mount the motor blower to the cyclone body. To do this, carefully invert the motor blower assembly (A) onto a smooth soft surface (e.g. carpet) and align (B) so that all (8) holes are matched. NOTE: The top of the body has two hole patterns to accept different motors. Plug the holes that are not used with the eight plastic plugs (M) and seal them with silicone caulk. After adjusting the relationship of the inlet and exhaust ports of the cyclone to match your floor plan, firmly secure A to B with a bead of caulk and 8 pan-head flange bolts (hS). Now, carefully stand the assembly up on a hard flat surface, making sure there is no debris under the body. Plug in the motor and turn it on to test. Unplug cyclone when testing is finished.
- 3) Locate the neutral vane cylinder (C) and slip 8-3/4" of it into the suction intake of the upper cyclone body (B). Secure it with silicon caulk or sheet metal screws (not provided).
- 4) Locate the adhesive-backed foam strip (G) and carefully attach it to the large flange at the top of the cyclone cone (E). This will assure an airtight seal between the body (B) and the cone (E). Put the cone section in place over the inverted body aligning the 10 holes for the ten hex head bolts (hR). Be sure that the seam running down the cone is facing back toward the wall or the plywood mounting board. Insert the ten bolts and washers (hR) through the bottom of the cone flange and secure with the appropriate nuts, washers, and lock washer. Do not tighten at this time. The unit is now ready to be fastened to the wall.
- 5) Assemble the mounting brackets (F) by bolting the cross bar to the brackets with the hardware supplied (hQ).
- 6) Determine an appropriate location for your cyclone. Setting the Tempest upright in its final position will require the assistance of another person. The two mounting brackets (F) should be mounted as shown– 19-7/8" apart on the centerline of the bolt slots. Take into consideration the height of your ceiling and the height of your barrel and determine the proper height to mount the wall brackets. Depending on the construction of the selected wall, use six best grade 1/4" lag bolts or concrete fasteners. Firmly attach the brackets to the wall or plywood and test for strength. (If mounting to plywood, use 6ea. 5/16" carriage bolts (not supplied)).

- 7) Remove the 4 bolts (2 on each side) located on either side of the unit used to connect the unit to its wall brackets. Lift the entire system into position on the brackets and fasten it to the wall brackets using the four bolts (hR) taken from the upper flange. Tighten all 10 bolts and nuts.
- 8) Screw the wall-mounted on/off switch to an appropriate location. Keep in mind small children and your own convenience. Be sure to connect to an appropriate power service.





Tempest S-Series Cyclone Dust Collection Systems

- 9) Using the 7" waste can flange (H) as a template, cut a 7" hole in the lid of your waste can and drill 6 each 3/8" holes for 3/8" hex bolts (hP). Bolt and seal the flange to the top of the can with a quality silicone caulk (**#CYSCAULK**). Let this cure for 24 hours before testing. Connect the waste can lid to the bottom cyclone flange with the included 12" x 7" clear flex hose (I) and hose clamps (L).
- 10) Install the support brackets (G). Mount the small "L"-shaped brackets to the underside of the flange at the bottom of the cone using hardware (hP). Then secure both brackets to the wall or plywood mounting board.
- 11) Preparation of Cartridges (see fig. 5)- Adhere adhesive disks (U) to the top and bottom of the lower cartridge (O). Place the upper cartridge (P) on top of the disk and firmly press down, making an airtight fit. Insert the blast gate (R) into the hole in the cleanout can (S) and use a generous amount of caulk to seal the gate into the hole (not used on TEMP1550S). Set the cartridge filters on top of the cleanout can and press down for an airtight fit. Place bellmouth Q on top of the upper cartridge (P). Secure hose with hose clamps (T).
- 12) Connect to your power source, make sure all connections are secure, stand free of the cyclone intake and turn on the cyclone using the switch. Finally, with the unit operating, inspect all seams and connections for pin-hole leaks. If any appear, they should be filled with a premium silicone caulk and given enough time to fully cure before re-testing. Failure to seal properly will result in excess dust in your final stage cartridges.
- 13) Slide the 7" to 6" adapter (N) to the neutral vein if you plan on using 6" ductwork. Secure with caulk or sheet metal screws. Refer to page 6 for ductwork suggestions.

Cartridge and Cleanout Can Maintenance

Keep filters dry at all times. Use compressed air or a shop vacuum to clean the cartridges. Set the compressor to 40 psi and move the air source up and down the outside of the cartridge, aiming towards the center. Take time to clean each pleat of the filter from top to bottom. Very fine dust will fall into the cleanout can and accumulate.

Periodically, use your shop vacuum to remove dust from the cleanout can. For best results, insert the suction end of the shop vac into the can via the mounted blast gate or access door and turn it on. Blow the filters clean with the shop vacuum's exhaust while pulling the dust through the cleanout port on the can with the vac's suction. This will prevent fine dust from travelling back through the system. The can should be checked about once every six months.

Troubleshooting

Problem: Excessive amount of dust goes into the cartridge filters

Solution: • Check the seals around the debris drum. A poor seal will cause this problem.

- Empty the debris drum which may be overfilled.
- Problem: Poor airflow and / or suction through the system

Solution: • Check for clogged filters and clean as neccessary.

- ${\boldsymbol{\cdot}}$ Check for open gates.
- Avoid ports less than 4".
- Avoid ductwork piping less than 5".
- Avoid sharp elbows.

Problem: Static electricity builds up in PVC piping, causing shocks. **Solution:** • Wrap ductwork with metal wire and ground at either end.

• Replace ductwork with metal piping.

Problem: When assembling your cyclone, the support brackets do not align. **Solution:** • Verify that the seam on the cone is positioned at the back.

Problem: Remote does not turn on unit. **Solution:** Check that switches on unit are in the "ON" position.



fig. 5 - Preparation of Cartridges

Tempest Cyclone Operation and Installation Suggestions

- 1) Try to maintain the largest possible diameter of ductwork throughout the shop leading up to connections with your machines. Use 6" or 7" ductwork throughout the shop if possible (using 7" if splitting off to two machines being used concurrently). Because 30ga. galvanized HVAC may collapse under pressure from the vacuum, we suggest using strong (26ga. or heavier) spiral metal pipe as distributed by PSI.
- 2) Use "Y" or lateral type bleed offs from the main (as opposed to a "T"). This will help to maintain more efficient airflow. The diagram below indicates laterals that feed to 6" extension lines and then to 4" hookup drops for machine connections.
- 3) Use blast gates at every connection between machinery and ductwork in order to close branches when not in use.
- 4) Since it is conductive, no grounding is necessary when using galvanized metal ductwork. Check continuity to be sure the entire system is grounded.
- 5) To maximize airflow, avoid sharp 90° turns and excessive reductions in hose diameter.
- 6) Poor air flow or excessive dust in the filter bag may be a result of a poorly sealed system. The most common leak is at the drum lid. Check the lid and all other connections at the cyclone to ensure the best performance.



fig. 6 - Ductwork Layout Diagram

Available Accessories for TEMPEST Cyclones

1. 26ga Snaplock Pipe

Snaplock metal pipe is economical, smooth, and practical. It is delivered open and flat-snap it together and lock it along the length of the pipe's seam to make your pipe. It is an easy cut to length with shears. Available in 5' lengths only.

2. Heavy Duty Spiral Pipe

(24 gauge) The inside of the pipe is very smooth while the continuous outside seam provides superior support and strength. Large ends adapts to small end coupling and fittings. Available in 5' lengths only.

3. Long Ranger Remote Dust Collector Switch - LR220-3

Save yourself the inconvenience of walking over to turn on your cyclone when you find you're in the middle of a critical project. Simply press the transmitter on/off button to easily switch your cyclone on or off. Compatible with TEMP1425S and TEMP1535S units.

4. Long Ranger MultiGate Switch System - LRMSET220

Turn on your cyclone when you open your blast gate. Never forget to turn your dust collector on or off. Make it automatic when your cyclone is wired to the MultiGate[™] switch system. Compatible with TEMP1425S and TEMP1535S units.

5. Cyclone Muffler - TEMUFF-6 / TEMUFF-7

Reduces cyclone sound by 50% (10db) without effecting machine performance. Attaches between cyclone and filter. Requires hose to connect. Length of muffler with flanges is 23-3/4".

6. Dust Level Sensor - BINSENSOR

Sounds an alarm when your cyclone's bin is full No more guessing about the dust levels in your cyclone's collection drum. A rotating paddle mounts through the lid of your container and activates the sensor when the paddle is stopped by a high sawdust level. Includes a 110V power cord and a relay connection that can activate an external devise such as a visible light bulb.

7. Dual Drum Kit - CYDDK

Double the amount of dust you can collect before you have to empty your drums. Includes: 7" wye and cyclone connector, a 7" connection hose, two flanges, & band clamps. Adds 12" height to cyclone.

8. Table Saw Dust Collection Guard - TSGUARD

This Guard is the ideal solution for table saw safety and dust control. When connected to a dust collection system, the PSI Dust Collection Guard captures the dust thrown up by your table saw blade. The Guard can be used on any table saw with an extension table. It is very easy to install and easily swings out of the way. A unique counterbalance allows for fast and easy positioning.

9. Dust Grabber Downdraft Table - DGTABLE2

The Dust-Grabber sanding table captures the dust before it enters the air you breathe.

- Non-slip perforated, non-marring surface.
- Strong, laminated hard board construction.













Tempest S-Series Cyclone Dust Collection Systems

fig. 7 - Parts List					
Part#	Qty.	Description	Size		
DC14MB25HP * 1 Motor Blower		Motor Blower	2.5hp		
ZCYC15-01	1	Upper Cyclone Body	20"dia x 17"h		
ZCYC15-02	1	Neutral Vane Tube	7"ID x 12"		
ZCYC15-03	1	Vortex Tube	10"L		
ZCYC15-04	1	Cone	26-3/4" h		
ZCYC15-05	2	Support Brackets			
ZCYC15-06	1	Adhesive foam seal	20"dia		
N-FL07	1	Drum Connection Flange	7" dia		
D07	1	Drum Connection Hose	1ft x 7"dia		
CYDRUM26	1	26 Gallon Drum	20"dia x 21"h		
ZCYC15-07	2	Support Brackets L section	16"		
ZCYC15-08	2	Support Brackets Cross Section			
ZCY15-09	8	Plastic Plugs			
ZCY15-10	1	6" to 7" adapter	6"od x 7"od		
CYSCAULK	1	Tube Silicon Caulk	10.3oz		
CYFA *	2	1/2 Micron Filters	14" dia x 16"		
CYATT06 *	1	Hose to filter Connector	6" port		
DBC06 *	2	6" Hose Clamps - Hose to Filters	to 6"dia		
CYFILCAN4 *	1	Metal Cleanout Drum (for TEMP1535 also)	13"dia x 12h		
CYH142CC *	1	6" hose connection Blower to Filters	6"dia x 4ft		
DBC4 *	1	Plastic 4" Blast Gate (for TEMP1425S)	4" inlet		
ZCY15-11	11	Hex BOLT (Style hP)	M8 x 20		
ZCY15-12	4	Carriage Bolt (Style hQ)	M8 x 19		
ZCY15-13	10	Hex Bolt (Style hR)	M8 x 32		
ZCY15-14	8	Screw Head Bolt (Style hS)	M6 x 12		
ZCY15-15	44	Washer (For hP, hQ, hR)	M8		
ZCY15-16	31	Lock Washer (for hP, hR)	M8		
ZCY15-17	25	Nut (for hP, hQ, hR)	M8		
DRC08	2	Hose Clamp	to 8"		
CYFRING9*	2	Adnesive Foam King	9" dia.		

*Substitute the following for TEMP1535S & TEMP1550S

DOUGLADOGUD			0.51
DC15MB35HP	1	Motor Blower (for TEMP1535S)	3.5np
DC15MB50HP	1	Motor Blower for (TEMP1550S)	5.0hp
CYF36	2	1/2 Micron Filters	16"dia x 36"
CYATT07	1	Hose to filter Connector	7" port
DBC08	2	Hose Clamps - Hose to Filter	to 8"
CYFILCAN2	1	Filter Cleanout Can (for TEMP1550S)	13"dia x 14"h
CYH15	1	Blower to Filter Connection hose	7" x 4ft
N-BGA04	1	Metal Blast Gate (for TEMP1435S)	4" port
CYFRING10	2	Adhesive Foam Ring	10" dia.







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21