



SMART-TEC SERIES
PPV Fan

OPERATIONS MANUAL

Please Read First

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Thank you for choosing BlowHard as your ventilation solution!

BLOWHARD COMMITMENT

BlowHard fans are engineered to deliver maximum ventilation performance in a compact package for easy storage and deployment. They are rugged and durable, providing years of service to you and your community.

BlowHard is here to serve you. It is our goal that you receive the best service from BlowHard products and our team. If you ever have any questions or issues, please contact us. We are dedicated to ensure a long and reliable life of your BlowHard products.

WARNING

The following information is important to the proper and safe use of your BlowHard Positive Pressure Ventilation (PPV) Fan. Be sure to READ and UNDERSTAND the Operating Manual in its entirety BEFORE operating the fan. FAILURE TO FOLLOW THESE INSTRUCTIONS COULD CAUSE PROPERTY DAMAGE or PERSONAL INJURY.

SAFETY INSTRUCTIONS

It is the responsibility of the user to obtain and provide proper PPV/PPA training. Be sure to use Adequate Personal Protective Equipment (PPE) i.e. gloves and eye protection while handling this and other electrical equipment.

This electrical equipment utilizes 110/220V-AC which can cause serious electrical shock if not properly operated or maintained.

Use Rated and Approved Outdoor Electrical Extension Cord only with this equipment. If the plug is not rated as waterproof, do not submerge under water. Do not come in contact with wet electrical connections without proper personal protective equipment.

The fan in operation is a high-speed rotating mechanical device that can cause serious injury if body parts come into contact with rotating surfaces or material thrown into moving parts. Although safety grills are installed, they do not block all objects from coming in contact with the rotating surfaces. Do not attempt to push body parts or foreign objects through the grill slots. Do not allow any object, material, or fluid into the intake or outlet of the fan, or to come into contact with the fan blade.

Pinch Hazards. The fan is made to fold in and out for storage and operation. Care must be taken when setting up the equipment for operation, and for storing the unit. Pinch points are at the hinged sections of the fan. Do not put body parts in the space between opposing parts that are coming together upon closure or opening of the fan. Support shroud when releasing the brake. Not doing so could result in the shroud falling to a horizontal position quickly and can collide with the base or ground with significant force that could cause damage or physical harm.

Toe Hazards. This equipment may be stowed in elevated compartments and shelves. Safety handles and shoulder strap are provided for lifting and transporting the equipment. Appropriate footwear and gloves should be worn when handling equipment.

If any component of the fan is damaged, do not use the fan as it may result in injury.

Practice Common Sense.

WARRANTY STATEMENT

Please scan the QR Code on your asset tag or go to www.blowhardfans.com/register and fill out the Warranty Registration form and submit it to activate your warranty. Your BlowHard PPV fans come with a 2-year warranty with an additional 3-year scaled warrant covering all parts from the date of purchase under normal operating conditions.

While we try to make our products firefighter proof, it is nearly impossible. Any intentional misuse or abuse to the unit, accidental damages and anything outside “normal wear and tear” to the unit will not be covered under this general warranty policy. That being said, don’t hesitate to contact us to get the world’s best support and get your products running again.

UNPACKING PROCEDURES

Unpack and remove the fan from the cardboard box.

If possible, keep the box and molded package foam. If the fan needs to be returned for any reason, these items will help prevent damage during transit.

Visually check to ensure nothing is loose or broken during shipping. Lay the fan flat on the ground. Locate the yellow brake lever and compress to lift the shroud part of the fan upright and all the way over 180 degrees. Take note of the power console and AC cord/plug. Turn the unit on to verify it is functioning. If anything appears to be damaged, notify us immediately.

******The fan is shipped with the battery at a low state of charge for safety. Plug the fan in and allow it to charge fully.

Smart-Tec Control System

Smart-Tec is a fully integrated control system designed to make using and owning your fan a simple, reliable, and information rich experience. The Smart-Tec system includes the following.

Smart-Tec Operator Interface:

The Smart-Tec operator interface provides simple fan control and includes a rich dynamic display to provide critical data to the operator. The operator interface display screen will provide real-time performance data and remaining runtime dynamically. As the control knob is turned to increase and decrease performance, the runtime will actively adjust accordingly. The operator interface allows performance units to be quickly switched between metric and imperial (see page 11). This simple and precise control system takes the guesswork out of the operation and puts control into the hands of first responders.

Smart-Tec Battery Control System:

BlowHard's Smart-Tec battery control system is an innovative approach to provide more control with an easy, low-maintenance approach to integrating battery operated tools onto apparatus. Smart-Tec is an integrated charge, maintenance, and control system built into each fan to manage your battery. They are also designed for use on the apparatus shoreline with integrated maintenance and shoreline charging protection circuits, which prevent damage associated with power cycling.

Smart-Tec Diagnostics:

The operator interface display screen provides a portal to your Smart-Tec control system. Diagnostics are built into each fan to easily troubleshoot problems that may arise in the field. Key measurements have been implemented into the system to provide accurate data to determine the root of any issue that may arise. The Smart-Tec control system allows data to be presented dynamically so the fan can be analyzed in action in various states. The diagnostics allow assessment of the system to get to the root of the problem quickly.

To access Smart-Tec Diagnostics to troubleshoot your fan, please contact BlowHard Customer Support.

CHARGING PROCEDURES

Keep the unit plugged into the truck or wall socket when not in use to allow the Smart-Tec control system to charge and complete any necessary maintenance. Remember, there is no charge memory, so simply plug it in after each use regardless of existing battery capacity.

STEP 0: It is recommended to allow the battery to cool before charging. While temperature controls are integral to your system, charging at cooler temperatures will extend the life of your battery.

STEP 1: Make sure the Power Knob is turned to the left and clicked OFF.

STEP 2: Plug in the AC Power cord to an approved 120V or 220V-AC 50/60Hz power source. When the battery is fully charged and maintenance complete, the battery icon will stop flashing. The “Operator Interface Guide” detailed in this manual will provide further understanding charge and maintenance status.

Charge Time: Expected charge times: Fast Charge (fast blink): 0% - 90% capacity completed in 1.5 - 2 hours, depending on the fan model. Slow charge (Slow blink): can take 1 additional hour to complete 90% - 100% capacity. Battery maintenance can take a long time, depending upon if cell balancing needs to occur. During maintenance the operator interface will display accordingly. Leaving your fan plugged in will allow maintenance will complete. Elevated temperatures can delay charging and increase charge times. You can use your fan before the battery is fully charged, operating the fan at any point during the charge or maintenance process will not damage the fan or battery.

BATTERY CARE

The following are good maintenance practice:

- The Smart-Tec control system includes integrated charging and battery management. To charge your fan's battery, simply turn the power switch counterclockwise to the **off** position and plug it in. With the fan turned off and plugged in, charging and maintenance will occur automatically.
- The "Operator Interface Guide" detailed in this manual will provide further understanding of charge and maintenance status. Reference the operator interface to check the status of the charge or to see if any errors have occurred.
- Leaving the fan plugged in will allow the Smart-Tec system to charge and perform any necessary maintenance to maintain optimal battery health.
- Your fan is designed to be charged on the apparatus shoreline. Don't worry about shoreline power cycling. The Smart-Tec system is designed to manage the high rate of power cycling associated with shore line power; leaving your fan plugged into the shoreline will not overcharge or damage the battery.
- Charging is best completed in a cool environment. The optimum temperature range is 50F-85F or 10C-30C. Charging in extreme temperatures will extend charging times or prevent charging altogether.
- Charging at extreme temperatures may reduce battery life. If ambient temperatures are high and to extend battery life, allow 30-90-minutes after used to allow the battery temperature to reduce before charging.
- Fast Charge – A quick charge will charge your battery to about 90% of full capacity. The green battery icon will blink quickly.
- Trickle (Slow) Charge –Trickle charge takes place from 90% to 100% capacity. The green battery icon will blink slowly. Best practice is to complete a full charge during maintenance.

- Battery Maintenance – Once the charging process is complete, the Smart-Tec battery management system will automatically perform maintenance on the battery while the fan remains plugged in. This includes balancing all cells for optimized performance. Reference the operator interface to check if maintenance is being performed.
- Once charging is complete, the battery maintenance process may take several hours, depending on the condition and characteristic of each individual battery cell. It can also restart during extended periods of nonuse.

Battery Life:

- If you have problems with your fan, please contact BlowHard at 541-967-0063 or at support@blowhardfans.com.
- The typical estimated life of the Li-Ion battery supplied with your fan is up to 1000 full discharge cycles.
- When your battery reaches its life cycle the run time of the fan will begin to decrease and the battery pack will need to be replaced.
- Periodically check your run time. After Full Charge, your fan should be capable of running on battery for 70%-100% of its normal runtime, depending on the age and condition of your battery.
- Scan the QR Code in your fan's asset tag and select your fan model to check the specific details of your fan.
- Replace batteries with a BlowHard battery pack only. Please contact BlowHard Customer Support with your fan serial number for assistance.

******BlowHards want to Blow Hard!******

For general maintenance, discharge and recharge every 1 to 2 months. Working this process into a maintenance schedule can be helpful. Turn it on and let it blow. When it stops blowing, plug it in and let it fully charge. Cycling the battery occasionally will optimize cell performance and allow a system check to be completed.

A happy BlowHard Blows Hard!

If you are not achieving an expected run-time, plug your fan in for 24-hours so your fan can run a maintenance cycle on your battery. Retest your fan run time to see if it has increased. Contact BlowHard if you have any questions.

OPERATING PROCEDURES

- A BlowHard fan can operate on either AC power or battery power with a battery installed.
- There is a “dead-band” between the initial knob click and slow speed operation. With the knob in the dead-band you can check the status of the power source and battery level without turning on the fan.
- Automatic AC/Battery power switching: When operating your fan, the control system will sense when AC power is available and automatically switch to the AC power source. If AC power is removed or lost, the control system will automatically switch power back to battery if sufficient battery power is available.

BATTERY OPERATION: Charge battery before use.

- To operate the fan, turn the Power Knob to the right until it clicks ON. The Operator Interface will display the operating screen when the knob is in the on position.
- When operating on battery mode, the run time will display in hours : minutes next to the green battery icon.

AC OPERATION: Plug the fan into an AC power source.

- Note: If the fan is plugged while the Power Knob is OFF, this is charging mode. Reference “Charging Procedures” and “Battery Care” for more information on charging.
- To operate the fan, turn the Power Knob to the right until it clicks ON. When the knob is turned on charging will stop and redirect all AC power to run the fan. The Operator Interface will display the operating screen when the knob is in the on position.
- When operating on AC power, an AC icon will display next to the green battery icon. Reference “Operator Interface Guide” in this manual for more information.
- BlowHard fans will operate on standard 110 - 240VAC outlet powering the automatic AC-DC Switching Power Supply with integrated safety features.

POWER CONSUMPTION:

When using an extension cord it is important to reference amperage limits vs cord length to ensure the cord gauge is adequate to power your fan.

- Expected AC Running Power Consumption
 - Squirt
 - 120VAC 50/60Hz: 7.5-Amps
 - 240VAC 50/60Hz: 4-Amps
- Expected Charging Power Consumption
 - Squirt
 - 120VAC 50/60Hz: 5-Amps
 - 240VAC 50/60Hz: 3-Amps

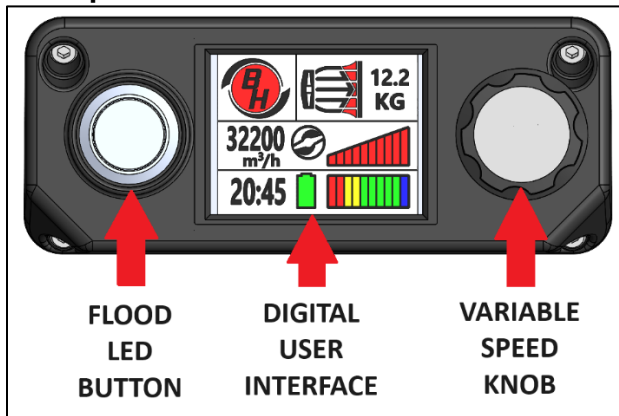
Variable Speed Control:

- Your fan is variable speed. As the knob is turned clockwise the fan will turn on at low speed and increase to high speed. Increasing or decreasing speed will directly impact performance. As speed is adjusted the performance displayed on the Operator Interface will adjust in real time. There is a “dead-band” between the initial knob click and slow speed operation.
- The fan can be started at maximum speed for PPV Operation by directly turning the Power Knob fully clockwise. The Electronic Speed Controller (ESC) will ramp-up the fan to maximum speed without causing any power surge.
- In operation, the operator interface display screen will provide real-time performance data and remaining runtime dynamically. As the control knob is turned to increase and decrease performance, the runtime will actively update accordingly.
- To set the fan at speed other than maximum, the fan can be started at maximum speed, and then dialed down, or start

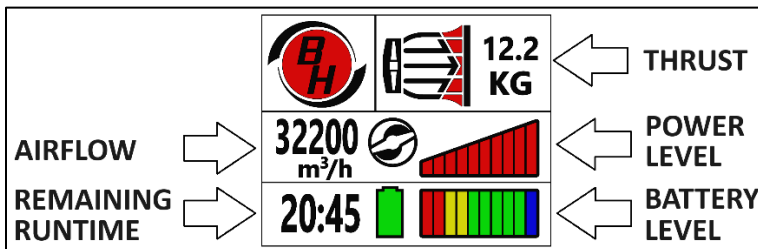
at minimum speed and quickly dialed up. The ESC will control and prevent any power surge.

- The minimum speed is factory preset to provide light ventilation, is useful for rehab situations, and will significantly extend the battery usage for hours.

Operator Interface Guide



The Operator Interface provides real-time feedback of performance and run-time. As the fan speed is adjusted, flow, thrust, and run-time will adjust accordingly.



Operator Interface Display Units:

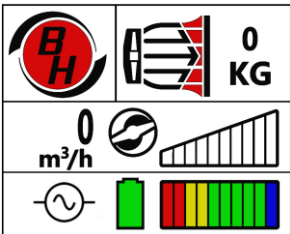
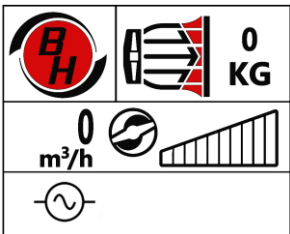
The Operator Interface allows the display units to be set to either imperial or metric units for airflow and thrust.

To switch between units: turn the fan on and push the Flood LED button 10-times (this would be the same as turning the Flood LED on and off 5-times)

CFM flow & LBS thrust	m3/h flow & KG thrust
  17.4 LBS 32200 CFM   20:45  	  12.2 KG 32200 m³/h   20:45  

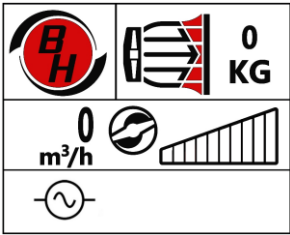
Knob is in the “ON” Position:

Operation state and screen display

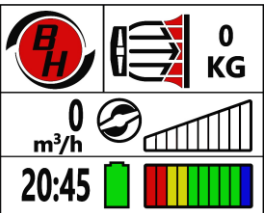
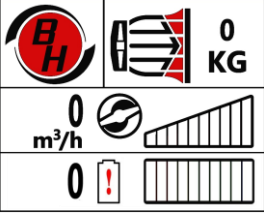
Plugged in?	Status	Operator Interface Display
Yes (PS voltage >10v)	Battery Installed, Normal AC operation	
	No Battery, Normal AC operation	
Yes (PS voltage <10v)	Battery Installed, -Under Voltage PS -PS fuse blown -ESC fuse blown -Battery fuse blown	

Knob is in the “ON or OFF” position:

No Battery

Plugged in?	Status	Operator Interface Display
Yes	No Battery	

Knob is in the “ON” Position:

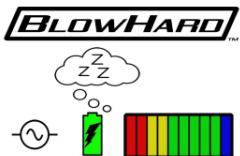
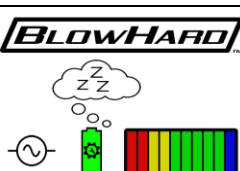
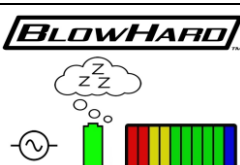
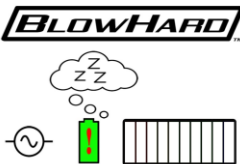
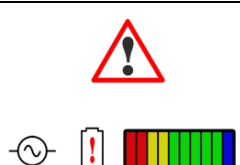
Plugged in?	Status	Operator Interface Display
No	Battery Installed. Ready for Normal Battery operation.	 The display shows a red battery icon with 'H' and 'L' levels, a scale from 0 to 100 KG, a flow rate of 0 m³/h, a temperature of 20:45, and a full battery level indicator.
	Battery installed but discharged. Charging Required.	 The display shows a red battery icon with 'H' and 'L' levels, a scale from 0 to 100 KG, a flow rate of 0 m³/h, a temperature of 0, and a battery level indicator with a red exclamation mark.
	No Battery. No operation. Unplugged.	Interface will not be lit up.

Hot/Cold Delay definition:

- * Temperature > 65°C or Temperature < -20°C
- ** 0 °C < Temperature < 5 °C or 50 °C < Temperature < 55 °C
- *** Temperature > 55°C or Temperature < 0 °C

Knob is in the “OFF” position:

Charging and maintenance state and screen display:

Plugged in?	Status	LED Control Board
Yes	Fast Charge Battery Icon Flash ■ ■ ■ ■ ■	
	Slow Charge or Hot/Cold Delay** Battery Icon Flash ■ ■ ■	
	Battery Maintenance Icon Flash ■ ■ ■	
	Charged Battery Icon Flash ■■■■■■■■■■	
	Charge Battery or Battery Recovery Attempt (Over-Discharge Occurred)	
	Hot/Cold Delay***	
	Battery Damaged or Blown Battery Fuse.	

PRODUCT SPECIFICATIONS

BlowHard fans are highly portable, fully integrated AC/DC Electric PPV/Ventilation/Industrial Fan Systems.

LI-ION BATTERY TECHNOLOGY

The BlowHard Li-Ion batteries have been specifically designed for each fan. BlowHard batteries are big to provide exceptional energy density, high power and extended life. The lifecycle expectancy is up to 1000 cycles. While these batteries have exceptionally low self-discharge rates, be sure to follow the recommended battery maintenance plan to avoid prematurely damaging the battery. Batteries charged and used in appropriate BlowHard fans are safe from over charging or over discharging.

Disposing and Recycling

Lithium-Ion batteries are subject to disposal and recycling regulations that vary by country and region. Always check and follow regulations applicable to your area before disposing of any battery. Contact your local battery recycling organization for more information.

Many countries prohibit the disposal of waste electronic equipment in standard waste receptacles.

Place discharged batteries only in a battery collection container. Use electrical tape or other approved covering over the battery connection points to prevent short circuits. Call or email BlowHard for assistance if needed. Phone: +1-541-967-0063 / Email: support@blowhardfans.com).

SMART-TEC BATTERY MANAGEMENT SYSTEM (BMS)

The Smart-Tec integrated charging system eliminates the need for an external battery charger. This makes battery management extremely easy and eliminates the need for external chargers.

BlowHard's advanced Smart-Tec control system automatically protects batteries from over charging and over discharging. Smart-Tec will charge the battery automatically when the fan is plugged in and in the OFF position.

Temperature controls are integrated into the Smart-Tec BMS to reduce charge rates at temperature extremes and shut down when temperature limits are exceeded.

Power sensing and Automatic Power Switching are built into the Smart-Tec power controls. There is no switch to transfer power between AC and Battery power. If the fan is pulled into AC power the fan will sense and automatically run on AC power; if the fan is unplugged from AC power the fan will automatically run on battery.

BlowHard's BMS also features automatic battery maintenance when charging is completed and while the fan remains plugged in.

FAST CHARGING INTEGRATED CIRCUIT

- No external charger to buy
- Recharges to 90% in 1.5 – 2 Hours
- Maximum Power, Quick Charging, No Memory
- BMS manages Trickle Charge, Capacity Control, and Maintenance.

ELECTRONIC SPEED CONTROLLER (ESC)

For maximum efficiency, power and control BlowHard fans utilize brushless motors and controllers. The ESC motor controller drives the the Brushless DC (BLDC) motor to provide consistent air flow and pressure at each setting.

NEODYMIUM MAGNET BLDC MOTOR

BlowHard fan motors are uniquely engineered to work with the components of the fan to deliver the most effective power and performance possible every time you turn it on.

ADVANCED PROPELLER DESIGN

BlowHard fans are equipped with a unique blade, engineered to increase thrust, reduce turbulence, and deliver exceptionally high-pressure airflow while reducing noise.

RUN TIME PERFORMANCE

Your fan is variable speed. By turning the knob on the fan, the power, performance and run time will adjust. Your run-time will adjust based on the remaining battery capacity and power. The performance and remaining runtime will display on the operator interface.

- Squirt Smart-Tec fans have a 50+ Minute Battery Runtime when set to High Speed and a 6-hour Runtime when set to Low Speed.

As always, BlowHard fans have unlimited run time at any speed when operating on 110-240VAC Auto-Switching Power Supply.

Ingress Rating

BlowHard fans are expected to have an ingress rating of IP-67. The sole purpose for this is to provide an added protection for the electronic components contained within the fan. **BlowHard fans are not designed to be submerged in water.** Ensure electrical extension cords are not operating in standing water.

LIGHT WEIGHT AND COMPACT IN SIZE

Total system weight including Integrated Battery, AC Power and Charging Circuit:

Squirt: 38 lbs / 17.5 kg

ASSESSORIES

The center of the fan grill is a metallic hub to which attachments may be connected including the popular multipurpose Misting Ring and Insta-Click Ducting. See your distributor for details.

VALUE ADDED

Modern Design for Portable Power Equipment. Advanced Battery, Electronics, Motor, and Propeller Technologies.

Highest Performance/Volume and Performance/Weight ratios on the market.

Ergo-Fold design to reduce fatigue and injury. Allows two fans to occupy same space as 1 traditional fan would. Fits in small tool compartments.

Ultra-Portable for easy storage and transport at running pace, up and down stairs, in narrow hall ways.

IP-67 rating for ingress protection of dust and water. This is for added protection for the electronic components in the fan.

BlowHard fans are not designed to be submerged in water.

No Gasoline – Emission-free.

Brushless motor does not produce sparks and is highly efficient at high speed. Compact and streamlined behind the propeller.

High-capacity batteries: Over 4X capacity and 8X battery run time over comparable size fans with standard swappable batteries. This saves manpower, truck space for up to 8 batteries, battery costs associated with 8 swappable batteries, and confusion as to which batteries have been charged. Or you can just run around like a bunch of monkeys. K.I.S.S!

VALUE ADDED (continued)

Li-Ion battery technology providing superb power, long life-expectancy, quick recharge rate, exceptionally low self-discharge rate.

No power surge. Works with AC outlets from buildings or generators on trucks. Unlimited AC operation hours. Common 110/240VAC outlet.

No external battery charger to buy or maintain. This saves space on the truck and limits confusion about which batteries are charged.

Set-up anywhere - power base provides stabilizing counter weight while protecting battery, power supply, and integrated electronics.

Low Charge Time: Near full runtimes in 1.5 – 2 hours.

Integrated Self-monitoring Battery: Automatically performs battery maintenance after charging is complete, if needed. Fan must be plugged in for auto-maintenance to occur.

AC-DC POWER: Automatic Power Switching. Use common household 110-240VAC outlets.

FASTER RESPONSE TIME: Significant reduction in time taken to deploy PPV. Advantage Operational Response Factor.

DISCLAIMER

Do not attempt to repair, replace, or modify motor, propeller, any battery components, any electrical components or any electronic circuit board without the written consent of an authorized BlowHard representative. Doing otherwise will void the warranty, and possibly result in property damage and personal injury or death. BlowHard products are intended for use by trained professionals, keep children and bystanders away while operating.

SERVICE INFORMATION

For Technical Support, Service Arrangement and Warranty Issues, please contact the following:

Blowhard
1906 Rye Street SE
Albany, Oregon 97322-7069

541-967-0063

support@blowhardfans.com

Please prepare to provide the following information.

Your Name
Fan Serial Number
Name of Distributor/Reseller
Date of Purchase
Your contact information
Company/Department information

BlowHard Fans guarantees you the best Technical Support, Upgrades, Warranty Service, and Out-of-Warranty repair.

All BlowHard fans are manufactured in Albany, Oregon by trained BlowHard Fan professionals.

NOTES

Thank you for your purchase!

Please register your product and activate your warranty at:

<https://www.blowhardfans.com/register>



BlowHard Smart-Tec Jet Series Fans made in Albany, Oregon, USA by

The BlowHard Company

<https://www.blowhardfans.com>