



HIGH PERFORMANCE FANS

OPERATIONS MANUAL



HP18 H/ES/EV



Thank you very much for choosing a **BIG** High Performance Fan.

High Performance Fans are well proven in firefighting operations all over the world. Read the operations manual carefully before you start any operation. If you have any questions about your fan, ask your dealer or contact us directly.

Our products will be advanced constantly. The information and pictures, included in this operating manual, are according the status at press date and are without commitment. From the contents of this operating manual, no demands can be claimed.

Any reprography of the manual – also in extracts – as a reprint, photocopy, on electronic data medium or in any other form requires our written authorization.

The operating manual is an important component of your fan. You should keep it available for the whole fan's lifetime. In case of selling-on, hand over the manual to the new owner.

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INTRODUCTION

Your High Performance Fan was built in accordance with approved safety regulations. A security check and a final inspection were fulfilled. However failure to follow the correct operation or misuse may result in serious personal injury, injury of a third party and/or damage to equipment and other property.

Before you start any operation make certain that anyone who works on or around the fan has read and fully understands the operation manual to avoid injuries and damage.

Follow all warning statements and labels placed on the fan!

The B.S. Belüftungs-GmbH will refuse any responsibility for personal injury, injury of a third party and/or damage to equipment and other property caused by misuse and failure to follow the safety instructions.

DESIGNATED USE

The fan was developed for tactical ventilation of burning structures during firefighting operations to remove heat, gases and smoke from the interior. In addition the fan can be used by construction contractors to temporarily control dust, fumes and unhealthy gases, greatly improving safety and working conditions in confined spaces. Use the fan only for the designated use.

The fan may be operated only by trained and introduced personnel. Continuous training as well as instruction by experienced and skilled staff will assure proper and safe operations.

The minimum age for operators is 18 years.

The operator must stop the fan immediately at any malfunction which could affect the operation safety. Restart the fan only after the malfunction has been eliminated. The operator is obligated to inform immediately his officer-in-charge. To keep the fan always ready for operation, it should be maintained regularly.

MISUSE

The fan is not designed for permanent operation to cool or ventilate buildings or for suction of smoke and gases.

HIGH PERFORMANCE FANS

Due to their air pattern HP-series fans can create a higher pressure inside the building and allow a greater set back. A higher pressure makes ventilation of complex structures and multi-level structures easier. The high speed of the air can cause the inside air to spin rapidly. Therefore the rpm / air output of a HP-series fan must be adjusted carefully to the actual structural condition.

SAFETY INSTRUCTIONS



The suction area of the fan must be free from any objects, which could be picked up in the air stream and flown in the air. Pay special attention that no clothing or long hair could be sucked in.

Do not put anything through the safety grill while operating.



Do not operate if any guard or grill is not in place.

Never operate the fan in explosive areas.

Do not turn the airstream directly against persons or animals.

Operate the fan only on a flat, hard and debris free surface. If necessary secure the fan as appropriate.

Do not move the fan while the engine/motor is running.



Secure the operation scene and light it at night! Keep bystanders away from the fan while operating.

Mount accessories only when the fan is turned off.



Always wear eye protection. Loose debris can be picked up in the air stream and flown in the air.

Hearing protection is required. Motor and air noise may exceed 85 dB(A).

While wearing hearing protection keep always eye contact with the other persons in operation.



Always wear your personal fire fighting protection gear during fire operations and training.

MODELS WITH COMBUSTION ENGINE



Never operate gasoline-powered fans in an enclosed or confined area. Exhaust contains poisonous carbon monoxide gas; exposure may cause loss of consciousness and may lead to death.

Use an exhaust tube to avoid sucking in of fumes by the fan.



Gasoline is extremely flammable and is explosive under certain conditions. During refueling smoking and open fire are prohibited.

At refueling during operations pay attention to flying sparks, flames, heat radiation etc. If any fuel is spilled, make sure the area is dry before starting the engine.



The muffler becomes very hot during operation and remains hot for some time after stopping the engine. Do not touch the muffler while it is hot.

Respect the further safety warnings on the following pages.

PRE-OPERATION

Before you start any operation make a visual inspection and check the fan for damage. In case of damage operational safety is not assured, don't use the fan for any operation.

MODELS WITH ELECTRIC DRIVE

Make sure there is a suitable power supply. Consider the high power consumption, especially at power-up due to the high performance of the fan.



For longer supply lines, pay attention to a sufficient cable cross-section of the supply line.

MODELS WITH COMBUSTION ENGINE

Check oil level before you start the fan. Make sure the fan/engine is level:

1. Remove and clean oil fill plug/dipstick.
2. Insert oil fill plug/dipstick to the oil filler neck (without screwing it in) and remove it again to check the oil level.
3. If the dipstick is dry, the oil level is too low. Pour oil slowly into the crankcase up to the bottom edge of the filler neck. Do not overfill.
4. Replace oil fill plug/dipstick and tighten securely (hand-tight).



Do not overfill. In case of overfilling oil can be ejected from the engine breather while running and get dispensed by the air stream.

Fan will be delivered without oil. Fill in oil before the initial operation.

The oil is an important factor for performance and durability of the engine. Use only 4-stroke engine oil, which will achieve or exceed the requirements of API-service class SJ.

Recommended oils:

for summer operation (10°C bis 40°C):	SAE 30
year-round operation (-15°C bis 40°C):	SAE 10W-30
Capacity:	0,6l (HP 18) bzw. 0,9l (HP 21)

Refer to the engine manufacturers Owners Manual for additional information.

Required Fuel: Gasoline (RON 91 or higher) max. 10% by volume of ethanol

Fill the tank only to bottom edge of filler neck to provide space for fuel expansion. Do not overfill the tank.



Gasoline is extremely flammable and explosive.

Stop the engine fur refueling. Pay attention to sparks, flames etc.

Refuel only outdoors. Wipe any spillage from engine, fan and ground.

TRANSPORT

The fan is equipped with versatile, innovative grip options for an easy handling and unloading.

In addition to the color-highlighted handles (1), which can be gripped both at the top and bottom, the frame (2) offers all around areas that can be comfortably grabbed with firefighting gloves.

The ergonomic flip-up handle (3) and the ball-bearing wheels (4) of the fan allow easy transport to the scene of operation. The patented handle offers two different grips (5) for large and small forces.



To use the flip-up handle pull the spring plunger (6) and fold up the handle to the end position. Latch the locking bolt into the hole provided.



Make sure that the locking bolt is engaged correctly.

TILT MECHANISM

For an optimum airflow to the ventilation opening, the inclination of the fan can be adjusted with the tilt mechanism.



Hold the fan at the handle and release the locking of the tilt mechanism using the foot-operated bar. Tilt the fan and release the bar to lock the tilt mechanism by spring tension into the according notch.



SET-UP

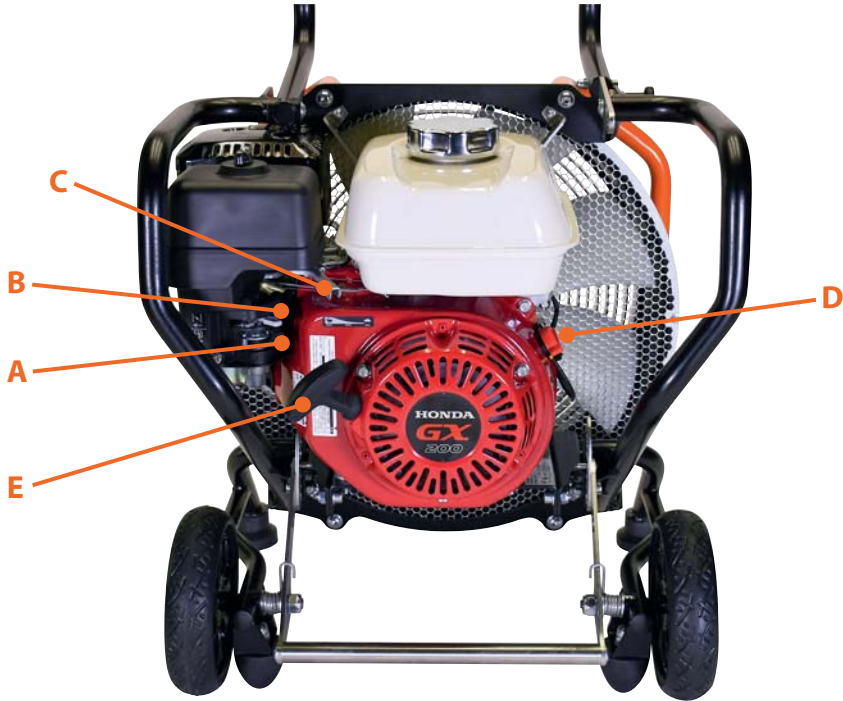
Place the fan on the outside of the structure so that the cone shaped air pattern created by the fan covers preferably a large area of the entrance opening.



Position the blower in the desired location, making sure it is placed on a flat, hard and debris free surface.
Do not operate without an adequate exhaust opening.

STARTING / STOPPING

MODELS WITH COMBUSTION ENGINE



STARTING

1. Open the fuel valve (A).
2. For cold starting set the choke-lever (B) on CLOSED position.
For warm starting let the choke-lever on OPEN position.
3. Set the throttle lever (C) to the 1/3 open position between MIN. and MAX.
4. Set the ignition switch (D) on position ON.
5. Pull the starter handle (E) slightly until you notice a light drag, then pull the handle strongly. Return the starter grip slowly. Repeat as necessary until the engine starts.
6. If the choke-lever (B) was set on CLOSE position for starting, move the lever gradually to position OPEN, while the engine is warming up.
7. Move the throttle (C) to the desired speed.

STOPPING

1. Move the throttle lever (C) to the idle position.
2. Turn the ignition switch (D) to the OFF position.
3. Close the fuel valve (A).

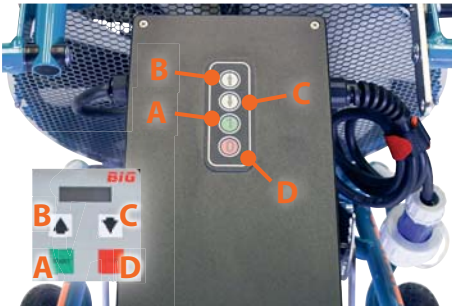


For an emergency stop just set the ignition switch to position OFF.

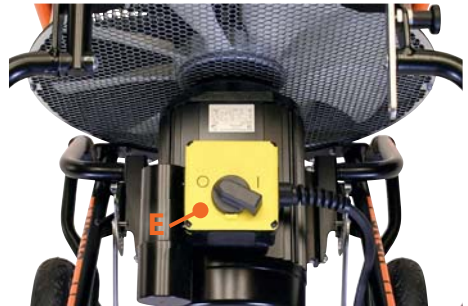
Refer to the engine manufacturers Owners Manual for additional information.

MODELS WITH ELECTRIC DRIVE

EV



ES



STARTING

1. Start the fan by pressing the button START (A).
2. Adjust the required speed. Press the button (B) to increase the speed continuously. Press the button (C) to decrease the speed.

Set the engine switch (E) to position I.

STOPPING

1. To stop the operation, press the button STOP (D).

Set the engine switch (E) to position O.



For an emergency stop just push the STOP button (D) respectively set the engine switch (E) to position O or disconnect blower from power source.

MAINTENANCE

Proper maintenance is necessary to ensure that your fan operates as efficiently and trouble-free as possible.



Always deactivate the engine during maintenance work: with combustion engine set the ignition switch to OFF and remove the spark plug connector; with electric drive generally pull the power plug!

Maintenance and repair only by personnel who have technical knowledge and are familiar with the fan.

Use only original spare parts or parts approved by the B.S. Belüftungs-GmbH. Non-approved spare parts may affect the characteristics or functioning of the fan negatively.

Damaged parts must be replaced!

The B.S. Belüftungs-GmbH will refuse all responsibility for injuries and/or damage to property caused by usage of non-approved spare parts, accessories or modifications.

Due to the operational conditions the following maintenance schedule must be observed.

MODELS WITH COMBUSTION ENGINE

	after each use	after the first 10 hours	every 10 hours	every 25 hours	every 12 months o. 100 h
Check engine oil level	X				
Inspect fan for damage and repair if necessary	X				
Change engine oil		X			X
Clean air filter			X		
Check and clean crankcase				X	
Check all bolted connections, tighten or replace if necessary				X	

For more information about the engine maintenance (oil change, air filter, fuel valve, spark plug, carburetor etc.) refer to the included engine manual.

Note the possibly deviating specifications for the maintenance intervals.

MODELS WITH ELECTRIC DRIVE

	after every use	every 12 months
Inspect blower for damage and repair if any	X	
Check electric power lines for damage	X	
Safety inspection for all electric components		X
Check all bolted connections, tighten or replace if necessary		X

TROUBLESHOOTING

Movement of the fan or „walking“

- The fan must be on a level and non-slip surface.

MODELS WITH COMBUSTION ENGINE

The fan fails to start

- Check if the ignition switch is on ON position.
- Check if the choke-lever is in correct position.
- Make sure the fuel shut off valve is open and there is fuel in the tank.
- Check the fuel line to determine if the carburetor is getting fuel. If necessary clean fuel filter and fuel line.
- Check the oil level, the engine is equipped with automatic oil alert stop. The engine will not start if oil is low.
- Check the spark plug.

If the fan still does not start contact your aftersales service center.

Reduced air output

- Check the air filter for cleanliness, clean if dirty.
- If the fuel is old, replace the fuel with fresh fuel.

MODELS WITH ELECTRIC DRIVE

The fan fails to start

- Check if there is a sufficient power supply.

If the fan still does not start contact your aftersales service center.

TECHNICAL DATA

Blade:	Fiberglass Reinforced Polyamide
Shroud:	Aluminum
Grill:	front: Polymer rear: Steel, zinc-plated
Frame:	Lightweight, Aluminum and Steel tubing, powder-coated
Handle:	Aluminum, patented ergonomic design
Tilt Mechanism:	Stainless Steel, 7 or 9 positions, foot-operated

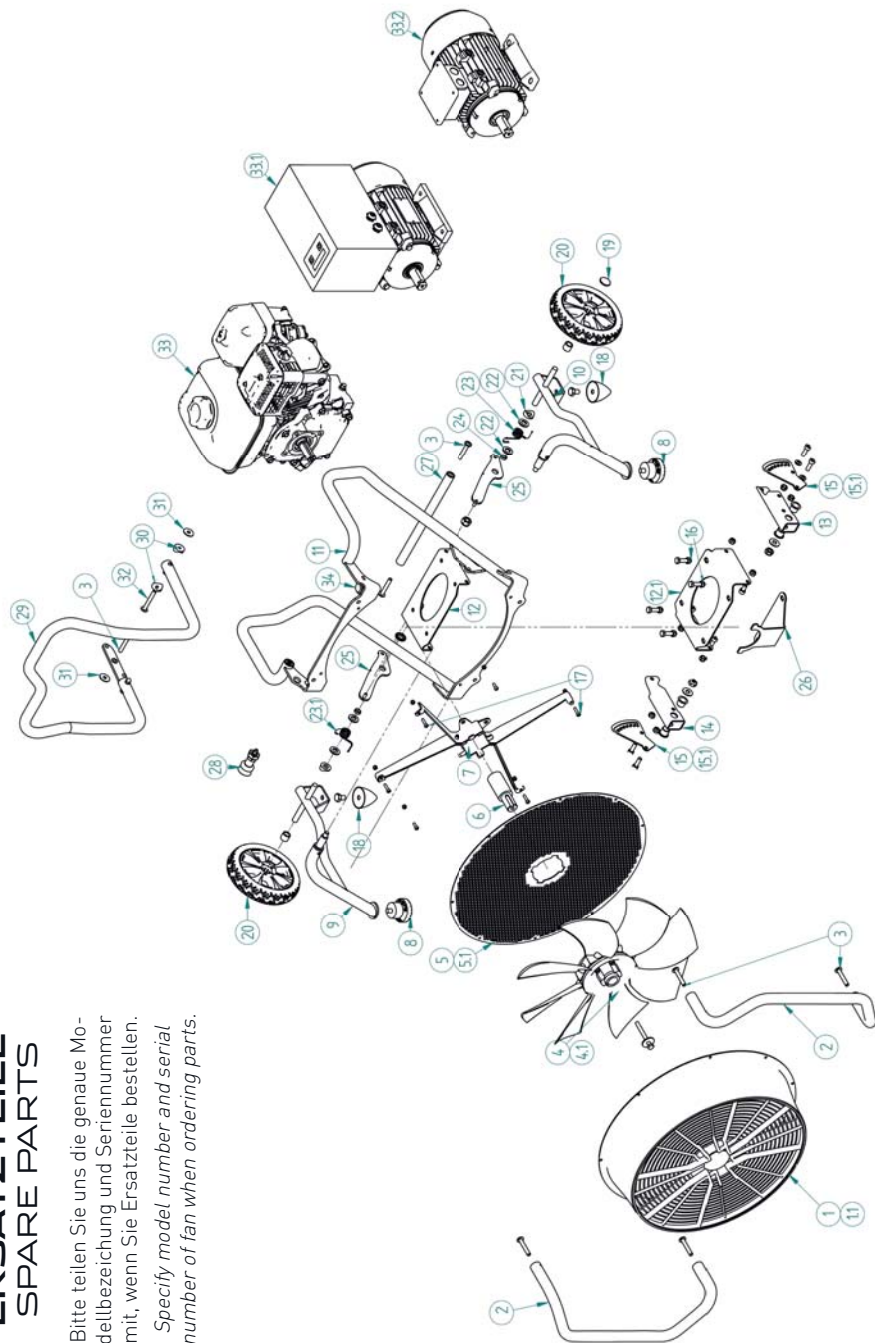
Type	HP18-H200-B1	HP18-ES2,2-B1	HP18-EV2,2-B1
Drive	Gasoline engine	Electric / single speed	Elektro / variable speed
Drive power	4,3 kW SAE J1349	2,2 kW	2,2 kW
Input power	---	2,6 kW	3,5 kW
Blade rpm	3.550 1/min	2.850 1/min	750 - 2.750 1/min
Air output effective	max. 55.000 m ³ /h	max. 45.000 m ³ /h	max. 45.000 m ³ /h
Engine/Power supply	Honda GX200	230V / 50Hz	230V / 50Hz
Tilt	+20° / -20°	+35° / -20°	+35° / -20°
Dimensions (w x d x h)	51 x 55 x 48 cm	51 x 55 x 48 cm	51 x 55 x 48 cm
Weight net	30 kg	32 kg	33 kg

Type	HP18-H160-B1	HP18-ES1,5-B1	HP18-EV1,5-B1
Drive	Gasoline engine	Electric / single speed	Elektro / variable speed
Drive power	3,6 kW SAE J1349	1,5 kW	1,5 kW
Input power	---	1,9 kW	2,3 kW
Blade rpm	3.550 1/min	2.850 1/min	750 - 2.750 1/min
Air output effective	max. 48.000 m ³ /h	max. 38.000 m ³ /h	max. 38.000 m ³ /h
Engine/Power supply	Honda GX160	230V / 50Hz	230V / 50Hz
Tilt	+20° / -20°	+35° / -20°	+35° / -20°
Dimensions (w x d x h)	51 x 55 x 48 cm	51 x 55 x 48 cm	51 x 55 x 48 cm
Weight net	29 kg	28 kg	30 kg

ERSATZTEILE SPARE PARTS

Bitte teilen Sie uns die genaue Modellbezeichnung und Seriennummer mit, wenn Sie Ersatzteile bestellen.

Specify model number and serial number of fan when ordering parts.



SPARE PARTS

Nr. / No.	Description
1	Shroud with front grill
1.1	Shroud with guide vanes
2	Front handles
3	Bolts front handle
4	Blade combustion engine
4.1	Blade electric drive
5	Rear grill combustion engine
5.1	Rear grill electric drive
6	Shaft extension (combustion engine)
7	Inlet guide vanes (combustion engine)
8	Front foot
9	Right leg
10	Left leg
11	Frame
12	Mounting plate combustion engine
12.1	Mounting plate electric drive
13	Pivot tube left
14	Pivot tube left
15	Tilt ratchet combustion engine
15.1	Tilt ratchet electric drive
16	Bolts for engine
17	Bolts for shroud
18	Rear foot
19	Wheel cap
20	Wheel
21	Curved washer
22	Washer
23	Step spring left
23.1	Step spring right
24	Spacer
25	Lever tilt mechanism
26	Retaining plate (electric drive)
27	Foot bar
28	Pulling knob flip-up handle
29	Flip-up handle assembled
30	Curved washer
31	Washer
32	Bolts for flip-up handle
33	Combustion engine
33.1	Electric drive variable speed
33.2	Electric drive single speed
34	Rubber pad for flip-up handle

EG-Konformitätserklärung / EC Declaration of conformity

gemäß Anhang II A der EG-Maschinenrichtlinie 2006/42/EG
in accordance with the EC machine directive 2006/42/EC, appendix II A

Die Firma / *The company*

B.S. Belüftungs-GmbH
Am Hungerwiesgraben 10
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erklärt, dass die bezeichnete Maschine / *declares that the product*

BIG Hochleistungslüfter
BIG High Performance Fan

HP 18-H200-B1 / HP 18-ES2,2-B1 / HP 18-EV2,2-B1
HP 18-H160-B1 / HP 18-ES1,5-B1 / HP 18-EV1,5-B1

allen einschlägigen Bestimmungen dieser Richtlinie entspricht.
is in accordance with all the relevant requirements of this directive.

Hiermit erklären wir ferner, dass die bezeichnete Maschine den nachstehenden Binnenmarkt-Richtlinien entspricht:
In addition the machine is in conformity with the following directive relating to electro-magnetic compatibility:

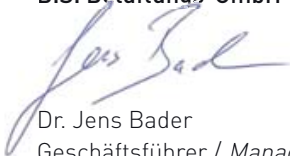
EMV-Richtlinie 2014/30/EG 2014/30/EC

Die Schutzziele der Niederspannungsrichtlinie 2014/35/EG wurden gemäß Anhang I, Nr. 1.5.1 der Maschinenrichtlinie eingehalten.
The safety objectives of the EC directive 2014/35/EC relating to electrical equipment are observed.

Angewendete harmonisierte europäische Normen:
Applied European harmonized standards:

DIN EN ISO 12100-1 / -2 DIN EN 953
DIN EN ISO 13849-1 DIN EN ISO 13857

Bachhagel, 21.01.2019
B.S. Belüftungs-GmbH



Dr. Jens Bader
Geschäftsführer / *Managing Director*

EST. 1991

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Fire Industry Association



Quality System Certificate No. 456
Assessed to ISO 9001



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ISS 2

We reserve the right to change or amend any design or specification in line with our policy of continuing development and improvement.