

3M™ Powered Air Turbo PF-602E

Technical datasheet

Description

The 3M™ Powered Air Turbo PF-602E is a belt-mounted air purifying device. It can be combined with an approved headtop or facepiece to form a power-assisted system for respiratory protection against particles, nuisance odours (where applicable) and gases and vapours. A range of approved breathing tubes are available depending on which headtop or facepiece is selected.

Turbo Unit

The turbo unit contains a DC motor powered radial fan running at a specified rpm, variable according to the filter/headtop combination.

A microprocessor calculates the power required to maintain the set flow rate and automatically adjusts the flow rate. If the flow rate falls below the minimum 160l/min, an audible warning sounds. An electronic limiter for motor rotation speed protects the motor from excessive wear during long-term use. The supplied units are calibrated.

Battery

A NiMH rechargeable battery is safely enclosed within the casing. Batteries are 4/3 A size NiMH, 8 cells providing 9.6V/4.1Ah.

The service life of the battery is extended by electronic control of recharging. Optimum performance of new batteries are obtained after three full charging cycles.

The battery operating time is 4-8 hours*, depending on the filter/headtop combination, satisfying the minimum 4h run time of the EN 12941:1998+A2:2008 and EN 12942:1998+A2:2008 Standards. The battery includes an internal overcurrent protection and temperature protection.

* Operating times are based on a fresh battery, appropriately charged with new filters being used at room temperature and moderate work rates. Extremes of temperature, the age and cycle of the battery, charge status, filter clogging, and high work rates may negatively impact operating time. If the application is sensitive to operating time it is recommended that the end user consults 3M to determine which type of battery should be used.

Charger

The microprocessor-controlled charger features an automatic recharging system including signal lights.

The signal lamp on the charger indicates charging status.



System Classifications and Protection Factors

The information in the table below depends on the headtop or facemask used. Refer to specific datasheet for headtop or facemask for more information.

	EN 12941:1998 + A2:2008		EN 12942:1998 + A2:2008
Classification	TH2	TH3	TM3
NPF	50	500	2000

Note: The Nominal Protection Factor (NPF) is a number derived from the maximum percentage of total inward leakage permitted in relevant European Standards for a given class of respiratory protective device. This may not be the level of respiratory protection that can be realistically expected in the workplace by wearers. Many countries apply Assigned Protection Factors (APFs) for example UK and Germany. Employers may apply a value lower than the NPF/APF if deemed applicable. Please refer to EN 529:2005 and National workplace protection guidance for application of these numbers in the workplace. Please contact 3M for further information.

Powered air respirator user interface

An automatic monitoring feature checks that the unit is operating correctly, warns the user of low battery and compensates for changes in air flow in addition to ensuring correct air flow. A self-diagnostic test on start-up shows the current status of the respirator on the digital user interface.

Ordering information

3M™ Powered Air Turbo PF-600 Series Starter Kits and Ready Kits

Part number	Description*
PF-619E	3M™ Powered Air Turbo Starter Kit PF-619E including 3M™ Powered Air Turbo, PF-602E, PF-630 Battery, PF-641E Battery Charger and SS-626 Comfort Belt
PF-600E LIK	The 3M™ Powered Air Turbo Light Industry Ready Kit PF-602E LIK includes a 3M™ Powered Air Turbo PF-602E, PF-630 Spare Battery, PF-641E Battery Charger, M-206 Faceshield, SS-626 Comfort Belt, DT-1135E PF10 P Filter, SS-BT-44 Heavy Duty EPDM Breathing Tube and ADP-03 Breathing Tube Adaptor

Breathing Tubes approved with 3M™ Powered Air Turbo PF-602E*

Part number	Description
SS-BT-23	Fixed Length Breathing Tube**
SS-BT-44	Heavy Duty Breathing Tube**
SC-BT-44L	Heavy Duty Breathing Tube**
SS-BT-55	Heavy Duty Breathing Tube for Tight Fitting Facepieces
SC-BT-55L	Heavy Duty Breathing Tube (100cm) for Tight Fitting Facepieces

*See headtop and facepiece datasheets for more information on approved breathing tubes

** May require use of ADP-03 breathing tube adaptor

3M™ DT-Series™ filter options approved with 3M™ Powered Air Turbo PF-602E

Colour code	Part number	Description	Protection	For use against
	DT-1135E	3M™ Particulate Filter PF10 P3 R D DT-1135E	P R SL	Solid and liquid hazardous particles, e.g. radioactive and toxic substances and micro-organisms.
	DT-1235E	3M™ Particulate Filter PFR10 P3 R D DT-1235E (reduced opening)	P R SL	Solid and liquid hazardous particles, e.g. radioactive and toxic substances and micro-organisms.
	DT-4031E	3M™ Combination Filter CF22 A2P3 R D DT-4031E	A1P R SL	Organic gases and vapours, e.g. solvents with a boiling point above 65°C, solid and liquid hazardous particles, e.g. radioactive and toxic substances and micro-organisms.
	DT-4032E	3M™ Combination Filter CF22 B2P3 R DT-4032E	B2P R SL	Inorganic gases and vapours, solid and liquid hazardous particles, e.g. radioactive and toxic substances and micro-organisms.
	DT-4035E	3M™ Combination Filter Cartridge CF22 A2B2P3 R D DT-4035E	A1B2P R SL	Organic, inorganic gases and vapours, solid and liquid hazardous particles, e.g. radioactive and toxic substances and micro-organisms.
	DT-4036E	3M™ Combination Filter CF22 A2B2E1P3 R D DT-4036E	A1B2E1P R SL	Organic, inorganic and acid gases and vapours, solid and liquid hazardous particles, e.g. radioactive and toxic substances and micro-organisms.
	DT-4045E	3M™ Combination Filter CF32 A2B2E2K2P3 R D DT-4045E	A1B2E2K2P R SL	Organic, inorganic and acid gases and vapours as well as ammonia and organic ammonia derivatives, solid and liquid hazardous particles, e.g. radioactive and toxic substances and micro-organisms.
	DT-4046E	3M™ Combination Filter CF32 A2B2E2K2HgP3 R D DT-4046E	A1B2E2K2HgP R SL	Organic, inorganic and acid gases and vapours as well as ammonia and organic ammonia derivatives, mercury and mercury compounds, solid and liquid hazardous particles, e.g. radioactive and toxic substances and micro-organisms.

A1 gas classification on relevant DT-Series filter. Hg filters only approved with TH3 and TM3 systems. DT-4031E, DT-4032E, DT-4035E, DT-4045E, DT-4036E and DT-4046E are not approved for use with the 3M™ Powered Air Turbo PF-602E connected to 3M™ Full Facepiece Reusable Respirator FF-600 Series.

Ordering information

Accessories for 3M™ Powered Air Turbo PF-602E

Part number	Description
SS-629	Belt Harness for SS-625 Belt
SS-625	Standard belt
PF-651	Disposable protective cover
PF-653	Shower plugs
SS-626	Comfort Belt
PF-641E	Battery Charger
SS-6600	Pre-filters
SS-6601	Pre-filter holder

Technical specifications	
Approvals	CE Certified to EN 12941 (TH2/TH3) and EN 12942 (TM3)
MMDF (manufacturer's minimum design flow rate)	160l/min with automatic adjustment
Battery type	NiMH rechargeable, 9.6V/4.1Ah high performance battery. Internal overcurrent and temperature protection. Size 134×34×34mm Weight: 502g.
Battery operating time*	4-8 hours depending upon headtop/facemask/filter combination
Battery charger	Mains operated: Prim: 100-240V AC, 50-60Hz 14VA. Sec: 4.8/9.6V DC. Max. 700mA 6.72VA. Size: 90×60×38mm.
Alarms	Visual display of battery status (A), particulate filter status (P). Warning buzzer of low battery status. Approx. 15 minutes running time remaining.
User interface	Power status, battery and alarm status.
Weight of the turbo unit without filters	1.6kg
Operating temperature range	-10°C to +30°C
Ingress protection rating	IP65 (suitable for cleaning by showering/water spray) with filters/decontamination plugs fitted filter ports and breathing tube/breathing tube port plug fitted. Do not submerge.

Material data	
Blower body	Polyurethane
Screw Ring	ABS
Body tensioner	TPE, 'Hytrel'
Inhalation valve body	PA Polyamide
Gasket	TPE
Pump unit	PA Polyamide



P-Indicates particulate filter status

The powered air turbo power required depends on the combination of facemask and filters being utilised. The P-Value on the turbo unit shows how hard the unit is working to achieve the 160l/min flow rate. The lower the P-Value, the harder the unit is working to achieve the required flow rate. During the first usages, the value is usually P8 or P7 as the turbo is easily reaching 160l/min flow rate (in combination with full face masks between P7 and P3). A lower reading indicates that the turbo is using more power to achieve an adequate air flow. An alarm will sound when the unit displays P0, indicating the resistance of the motor is too high. Particulate filter replacement is recommended when P1 is shown. At P1, the flow rate of 160l/min is still achieved.



A-Indicates battery status

When A9 is shown on the digital user interface, the battery is fully charged and can supply maximum power. When audible low battery alarm sounds and A0 flashes on the display, battery capacity has dropped below the required level to sustain the flow rate. Approximately 10-15 minutes remains before the 160l/min flow rate drops.

Data-logging and service

The 3M™ Powered Air Turbo PF-600E incorporates a data-logging function which automatically records information about usage and performance of the blower unit. The PF-600 Series Service Tool 2.1 Software is available to approved service centres for tracking the history of each individual power pack.

The service tool software handles the diagnostics unit. The powered air turbo is plugged into the computer with a cable without the need to open the unit.

Please note that only the serial number is stored in the device memory.

- ▶ It maintains warranty status in hours (warranty 1,800 hours or one year, whichever comes first)
- ▶ Provide error information
- ▶ Maintain loading data
- ▶ Track filter resistance to assist in change-out schedules
- ▶ Provide historical maintenance log

Please contact your approved service centre for further information.

Battery pack and PF-641E charger warnings

Seek medical advice immediately if a cell or battery is swallowed.

In the event of a battery leaking, do not allow liquid to come into contact with the skin or eyes. If contact has been made, use water to wash the affected area thoroughly and seek medical advice.

Use the battery only for the application for which it is intended.

Do not short-circuit batteries.

Do not dismantle, open or shred batteries.

Do not subject batteries to mechanical shock.

Do not expose batteries to heat or fire. Avoid storage in direct sunlight.

Never recharge in a potentially explosive environment.

Storing a battery that has depleted can damage the battery.

Do not charge the battery with any other charger except that which is specifically provided for use with the equipment.

Charge the battery only within the temperature range of 0°C to 40°C.

Do not store batteries haphazardly where they may short-circuit each other or be short-circuited by conductive materials.

The charger is suitable only for indoor use.

Use only an approved power supply.

Do not attempt to charge non-rechargeable batteries.

Do not leave a battery on prolonged charge when not in use.

This information also relates to any secondary battery that you may use.

Maintenance

Only certified technicians can perform maintenance on the 3M™ Powered Air Turbo PF-602E.

Regular and scheduled maintenance is essential for safe use of the equipment. In addition to pre-use and storage checks, check the apparatus on a monthly basis, and replace any defective parts. A qualified service and maintenance operator must perform a service on an annual basis.

A regular monthly maintenance schedule is performed as per the pre-use checks that includes a thorough visual inspection of all components. Perform a thorough inspection of all component parts before and after each use.

Cleaning

IP65 (suitable for cleaning by showering/water spray) with filters/decontamination plugs fitted filter ports and breathing tube/breathing tube port plug fitted. Do not submerge.

Once cleaned, all components must be left to dry naturally.

Storage

Ensure that the 3M™ Powered Air Turbo PF-602E is protected from damage during transport. When not in use, store the equipment in a clean, dry environment, away from direct heat sources between -10°C and +30°C, at a humidity of less than 75% RH.

Disposal

Dispose the equipment in accordance with local regulatory requirements.