



# ESM+ PF60 PAPR (NIOSH/CSA)

## All-in-One Head Mounted Powered Air Purifying Respirator. Enhanced for Maximum Mobility and Protection in Medium and Heavy-Duty Industries.

This all-in-one, head mounted PAPR is the next generation of the industry leading PureFlo ESM PAPR, offering all the same features plus more battery life, improved self monitoring, lighter weight, a higher flow rate, greater adjustability for maximum comfort, fit and stability, and much more. Ideal for medium and heavy-duty industries, such as Construction and Manufacturing, this next generation system is enhanced for maximum mobility and protection. As with all PureFlo products, you're assured of superior performance, durability, and a great value.



### KEY FEATURES

- Can be worn in tight spaces as there is no trailing leads, belts, hoses, cables, or other snag hazards which provides maximum mobility, reliability, and less maintenance.
- No belt mounted blower unit required, which improves comfort and makes the PAPR ideal for use with a range of protective workwear.
- Can be worn with fall protection harness without interference.
- Unique air circulation system creates a smooth continuous flow of air that draws air from surrounding environment through filter located at rear of helmet.
- Advanced electronics package continually monitors all functions and provides a self-diagnostic system check to ensure proper functioning.
- Refined, built-in Electronic System Management (ESM) includes simple LED user interface with an audio alarm. During use, the LED will remain green if the unit is operating normally; if it flashes red fast, and you hear three fast tones, this indicates low airflow or that there is no filter fitted; if it slowly flashes red, with two slow tones, it means the battery is low.
- Improved electronics provide an increased flow rate at 8.1 CFM/230Lpm.
- Contains a fully capsuled blower module with a single 7-way IP67\* connector between the sidebars and blower/motor unit with a standard internal on/off switch, in addition to having an external power switch option like the standard ESM.
- Four adjustable flame retardant Neck Capes (see back). When sealed, they create self-contained positive pressure environments, providing additional protection to the lower face and neck area.
- APF of 1000\*\* shown by a Simulated Workplace Protection Factor (SWPF) study.
- Wide vision face shield manufactured from high-impact resistant polycarbonate with anti scratch coating on both sides (ANSI Z87.1+ :2015 face and eye protection third party certified and listed SEI). The securely sealed shield provides protection against impact, high impact, and splashes.

\*IP67 = 6 – protection against dust / 7- protection against the effect of immersion between 15 cm and 1m

(Continued on back)

<b>Approvals</b>	PureFlo Hard Hat PF60 ESM+
<b>System Classification</b>	Powered Air-Purifying Respirator (PAPR)
<b>Head Protection</b>	ANSI Z89.1 Type 1 Class G
<b>Face Shield/ Eye Protection</b>	ANSI Z87.1+ :2015 Certified; SEI Certified and Listed
<b>Respiratory</b>	NIOSH 42CFR84
<b>Filter Type</b>	HEPA (HE) or HEPA/HF/HC *Nuisance OV
<b>Flow Rate</b>	8.1 CFM or 230 Liters/Min
<b>Noise Level</b>	Under 70dB
<b>Weight</b>	PF60 ESM+ without filter & batteries = 2,945 lbs. / 1125 g PF60 ESM+ w/ batteries & HE Filter = 4,091 lbs. / 1319 g PF60 ESM+ w/ batteries & HE/HF/HC Cartridge = 4.94 lbs. / 1658 g
<b>Assigned Protection Factor (APF)</b>	APF 1000 Neck Cape demonstrated by SWPF study/testing
<b>FM Nonincendive US and Canada</b>	Class I, II, III, Div 2, Groups ABCDEFG
<b>Head Size Range</b>	6 3/8" - 7 7/8" or 54 - 61cm
<b>Charger Specifications</b>	110V/240V AC/50 or 60 Hz/200 mA
<b>Battery Type</b>	5 Cell Nickel Metal Hydride 6v 2.2 Ah per pack
<b>Battery Duration</b>	Up to 7 Hours with Two Batteries
<b>Recharge Time</b>	2.5 Hours from Full Discharge

\*\* The employer must have evidence provided by the respiratory manufacturer that testing of these respirators demonstrates performance of a level of protection of 1,000 or greater to receive an APF 1,000. This level of performance can best be demonstrated by performing a workplace protection factor (WPF) or simulated workplace protection factor (SWPF) study or equivalent testing.



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### KEY FEATURES CONTINUED

- Bump cap and hard hat options for head protection, in a variety of colors. ANSI Z89.1:2014 Typ1 Class G head protection third party certified and listed (SEI) Black, White, Yellow, and HiViz colors available.
- Quick Release Headband makes the product simple to clean and allows the helmet to be adjusted quickly and easily for different head sizes and shapes, achieving optimum comfort, balance, and fit.
- Cable clamps securely connect cables to the sidebars for added relief of strain.
- Choice of HEPA (HE) filter or a combination HE/HF/HC filter (Hydrogen Fluoride and Hydrogen Chloride); both remove 99.97% of liquid or solid based contaminants; effective for removal of nuisance odors from organic vapors.
- Light weight at just over 4 lbs.
- Corrosion resistant gold-plated battery and updated rustproof hardware for added durability.
- Redesigned PCB with new electronics board and an altitude sensor that adjusts the flow automatically.
- Enhanced Blower/Motor assembly includes:
  - Integrated on/off switch with optional external on/off
  - Sealed electronics enclosure requires less maintenance and improves reliability
  - No user-serviceable parts
  - Decreased fan vibration which provides a quieter experience for the wearer
  - 5 cell battery pack provides long lasting battery life
  - Efficient blower motor design
  - Air duct profiled for low pressure drop, improved energy efficiency, directed into the shell comb, air will follow the inside of the shell into the breathing zone
  - Vent patch and audible warning sounder outlet
- Legacy PureFlo ESM PF50 and PF60 PAPRs may be upgraded to the new ESM+ configurations. Visit [www.gentexcorp.com/PureFlo](http://www.gentexcorp.com/PureFlo) for details.

### Optional Accessories

- Tychem 2000 (QC) Disposable Overhood, designed to help protect the head from limited liquid chemical splashes and dusts when worn with a PureFlo ESM+ PAPR.
- Nuisance Odor Filter Cartridge HE/HC/HF
- Four different neck capes—all with an APF 1000
- Secondary Visor Attachment that lets you attach a variety of different visors: gold coated, mesh, shades of green
- 16 battery multi charger
- ESM cap-lamp bracket
- Radiant Heat Kits

### Available Neck Capes

#### Integrity 1800 Neck Cape

- Recommended for pharmaceutical, biotech and similar applications, class 10 (ISO Class 4) and higher.
- Made of densely woven continuous filament polyester fabric with an ESD stripe designed to meet the quality and performance standards in critical Cleanroom environments around the world.
- Highly fluid repellent (Teflon® HT treatment) and also contains a durable antimicrobial treatment (Aegis) to inhibit bacterial growth and reduce bioburden.
- Adjustable neck cord.
- Two Velcro attachments for securing free end of lanyard.
- Twelve snap fasteners for easy removal and attachment.

#### STEDPRENE® (flame retardant) Neck Cape

- Flame Resistant as per ASTM D6413
- Abrasion Resistant Flash Fire Protection as per ASTM F1930
- Chemical Penetration Resistance as per ASTM F903
- Adjustable neck cord
- Two Velcro attachments for securing free end of lanyard
- Twelve snap fasteners for easy removal and attachment

#### Tychem® Single and Double-Bib Disposable Neck Capes

- Dupont Tychem® 2000 fabric starts with Tyvek® brand fabric and adds a polyethylene coating for added chemical protection.
- Tychem 2000 fabrics are tested by a third party laboratory to assess its chemical penetration resistance.
- Protects against light liquid splash with at least 30 minutes of protection against more than 40 chemical challenges.
- Used by many in the petroleum, pulp and paper, food and chemical processing, and pharma industries.
- Protects against biological hazards, such as exposure to blood or blood-borne pathogens, pandemic preparedness response.

### Backed by Gentex Corporation

Part of Gentex Corporation's line of industrial safety solutions, PureFlo products are supported by a global team of world-class engineers and design talent. Gentex is committed to designing innovative industrial safety solutions that protect people from immediate and long-term health and safety hazards present in their work environments, while enhancing workplace performance. Connect with us today for more information on PureFlo and our full line of industrial safety solutions.

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## Technical Bulletin for North American Region – April 2020

**The following information is a guide for Cleaning and Disinfecting Pureflo ESM+ and PF3000 Series Powered Air Purifying Respirator Assemblies following Potential Exposure to Coronaviruses.**

**The CDC defines cleaning and disinfecting as follows:**

**Cleaning** refers to the removal of germs, dirt, and impurities from surfaces. Cleaning does not kill germs, but by removing them, it lowers their numbers and the risk of spreading infection.

**Disinfecting** refers to using chemicals to kill germs on surfaces. This process does not necessarily clean dirty surfaces or remove germs, but by killing germs on a surface after cleaning, it can further lower the risk of spreading infection.

As per CDC guidelines for disinfection, diluted household bleach solutions, alcohol solutions with at least 70% alcohol, and most common EPA-registered household disinfectants should be effective to disinfect exterior surfaces.

Products with EPA-approved emerging viral pathogens claims are expected to be effective against COVID-19 based on data for harder to kill viruses. Follow the manufacturer's instructions for all cleaning and disinfection products (e.g., concentration, application method and contact time, etc.). From this list, <https://www.americanchemistry.com/Novel-Coronavirus-Fighting-Products-List.pdf>, diluted hydrogen peroxide or sodium hypochlorite (house-hold bleach) can be used to disinfect the outer surfaces of the Pureflo Respirators when used with a soft damp cloth or cleaning wipe.

To ensure there is no damage caused to the ESM+ or PF3000 series respirators please ensure that the manufacturer's instructions for cleaning agents are adhered to. As a guide to avoid any long-term degradation to the construction of the Pureflo respirators, it is advised that any Hydrogen Peroxide solution should be no greater than 3% by volume.

**For all other cleaning regimes please follow the guide lines as set out in the user manuals.**

### **Cleaning Guidelines for DuPont™ Tychem® garments for COVID-19**

**The following advice is offered with respect to the cleaning of the Tychem QC used with the PF3000-P unit.**

COVID-19 is a biological viral contaminate, therefore, causing surface contamination; consequently, the exterior of Tychem® garments are able to be cleaned, disinfected and reused a limited number of times for COVID-19 applications.

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- For cleaning use warm water, mild dishwashing liquid and a soft brush to remove any dirt from exterior surfaces.

- As per CDC guidelines for disinfection, diluted household bleach solutions, alcohol solutions with at least 70% alcohol, and most common EPA-registered household disinfectants should be effective to disinfect exterior surfaces.
- [Products with EPA-approved emerging viral pathogens claims](#) are expected to be effective against COVID-19 based on data for harder to kill viruses. Follow the manufacturer's instructions for all cleaning and disinfection products (e.g., concentration, application method and contact time, etc.). From this list, diluted hydrogen peroxide or sodium hypochlorite (house-hold bleach) can be used to disinfect Tychem® garments.
- Thoroughly rinse the garments with clean, fresh water and allow to air-dry.

If the interior of the garment is suspected of being contaminated, DO NOT attempt to clean, disinfect and reuse the garment; handle and dispose of the garment according to all applicable regulations.

**(\*) NOTE:** In the absence of data, DuPont is unable to provide guidance on the number of times a garment can be safely reused. It is the responsibility of the safety professional in charge to determine that a garment can be safely reused.

**You assume all risks and liabilities associated with the use of this product and you are responsible for evaluation of this product and its documentation (including test data) prior to use to determine whether it is suitable for your intended use. Gentex Corporation expressly disclaims all warranties, including the implied warranties of merchantability and fitness for a particular purpose, relating to the products and information (including test data) detailed herein or provided to you relating to any matter whatsoever, but including and not limited to in preventing the spread and/or contraction of coronavirus. Gentex Corporation will not be liable for any loss or damage arising from any information contained herein or associated with this product, whether direct, indirect, special, incidental or consequential, regardless of the legal or equitable theory asserted, including warranty, contract, negligence or strict liability, even if advised of the possibility of such damages. It is further the sole responsibility of the user to determine the suitability of any disinfectant product for use with Gentex Corporation's products.**

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