

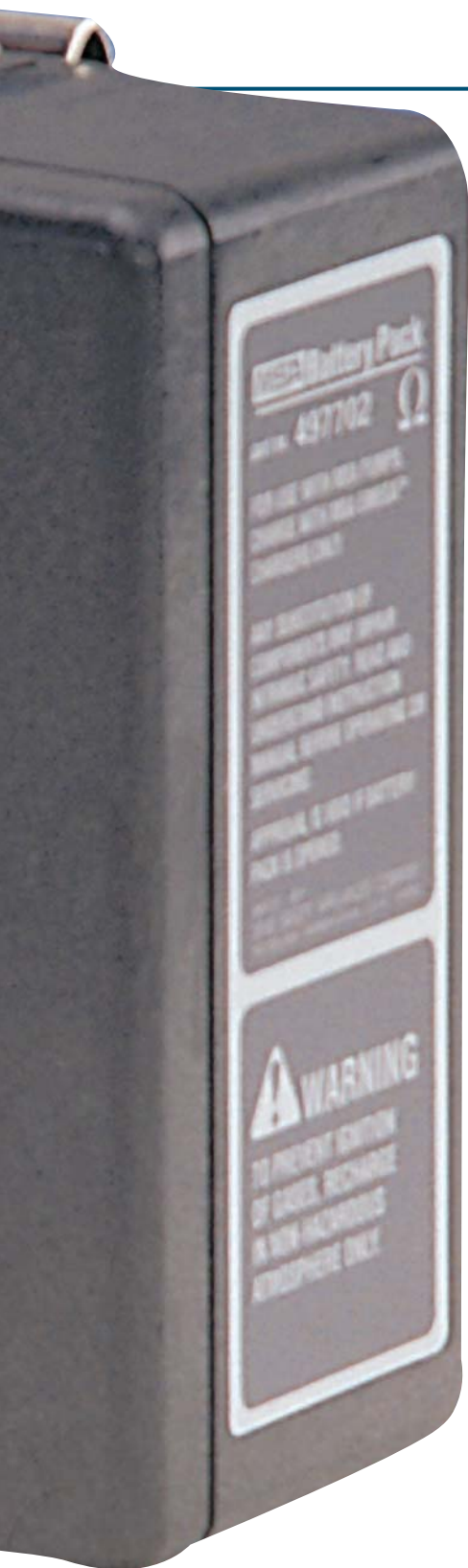
ESCORT® ELF and ESCORT LC SAMPLING PUMPS





Sampling should always be this easy.

Escort ELF Sampling Pump



- ➔ Patented electronic laminar flow control.
- ➔ Internal secondary standard calibrates the pump continuously for compliance with OSHA 3058.
- ➔ Check against a primary standard only once a month or every 200 hours for coal mine dust sampling.
- ➔ Inlet filter traps moisture and particular matter.
- ➔ Stainless steel-filled plastic case provides EMI/RFI protection.
- ➔ Rated IP66 for resistance to water and dust ingress.
- ➔ Exceptionally quiet operation.
- ➔ Optional Flow-Fault Indicator shows any sample inlet blockage.
- ➔ Run/Hold feature allows “time out” during sampling process.
- ➔ Elapsed time readout and low-battery warning.
- ➔ Low flow and dual tube sampling available with Gemini Twin-Port Sampler.

Competitive Advantages

- Patented “Laminar Flow” control permits the best accuracy in the business.
- Requires calibration only once per month or once every 200 hours for MSHA applications.
- “Key Pad” design allows adjustment of flow rates without tools or a potentiometer.
- Lightweight – only 19 ounces.
- Very durable design.
- Resolution display is .1 lpm in standard mode, .01 lpm in calibration mode.
- 3 gaskets provide superior protection against water and dust ingress.
- Tamper-resistant door restricts access to adjustment keys.
- Designed for use with many different sampling accessories.
- Extremely easy to use.

Ordering Information

The Escort ELF Sampling Pump is available through MSA’s ATO ordering system, which allows you to customize your order. However, for your convenience, listed below are two of the most popular ordering configurations by part number.

Part Number	Description
805559	Escort ELF Pump with 100v charger, Gemini® Twin Port Sampler, and standard packaging.
805560	Escort ELF Pump with 110v charger, sampling line, and standard packaging

Hundreds of other ordering combinations are available; see Escort ELF and Escort LC Sampling Pumps ATO, Bulletin #0810-33 for details. For a technical paper on the patented laminar flow control used in the Escort ELF Pump, visit www.msanorthamerica.com for Bulletin #0810-39.

Escort ELF Chargers (all 50/60 Hz)

Part Number	Description
494716	Single-unit MSA Omega Charger for Escort ELF Pump
495965	220v Single-unit MSA Omega Charger for Escort ELF Pump
801759	Five-unit MSA Omega Charger 110/220v adaptable for Escort ELF Pump
802473	Wall-mount rack for a five-unit charger and five ELF Pumps



Approvals

Escort ELF Sampling Pumps are UL approved as intrinsically safe for use in hazardous locations – Class I, Groups A, B, C, D; Class II, Groups E, F, and G; and Class III, Division I locations. NIOSH certified for coal mine dust sampling (TC-74-030). MSHA certified as intrinsically safe for underground use (Approval No. 2G-3924-1). Also Pennsylvania DEP, LOM 04ATEX2132.

Escort ELF Specifications

Operating Flow Control

Volumetric flow rate held within $\pm 2.5\%$ of set-point over the 1-to-3 lpm operating range ($\pm 5\%$ to 0.5 lpm), with automatic compensation for battery voltage, altitude, temperature and sample load changes.

Flow Rate

Flow rate adjustable between 0.5 and 3 lpm; lower flow rates attainable (to 1 mlpm) with optional Gemini Twin-Port Sampling accessory.

Flow Indication

Liquid Crystal Display provides 0.01 lpm resolution.

Operating Range

30 inches of water load up to 2 lpm and 10 inches up to 3 lpm.

Flow Blockage Detection

Flow-Fault LED comes on immediately when block is detected. Pump shuts down within 90 seconds if block is not cleared.

Elapsed Time Readout

To 999 minutes in increments of 1 minute. Holds the last reading after either flow blockage or low battery shutdown and when pump is off or in hold mode.

Operating Time

Varies with flow rate and sampling device loading.

Operating Temperature Limits

32°-113°F (0°-45°C)

Physical Weight

19 oz. (550 gm), with battery pack.

Dimensions

2" D x 4" H x 3 7/8" W
(5.1 cm x 10.3 cm x 9.8 cm), with battery pack.

Power Supply

4.8-volt battery pack of four nickel cadmium cells.

Battery Pack Capacity

1.8 amp hours

Battery Pack Recharge Time

14-16 hours (overnight) with Omega™ Charger.

Typical Battery Pack Life

300 or more charging cycles

Escort LC Sampling Pump

- ➔ Watertight case for occasional water spray.
- ➔ Inlet filter traps particulate matter; optional filter to trap moisture.
- ➔ Stainless steel-filled ABS plastic case for RFI/EMI protection.
- ➔ Belt clip allows pump to be worn at the waist.
- ➔ Separate LEDs indicate pump operation and low battery.
- ➔ Charging jack port is located on the battery pack.
- ➔ Weighs only 18 ounces.
- ➔ Exceptionally quiet operation.
- ➔ Low-battery indicator.
- ➔ Economically priced.
- ➔ Intrinsically safe.

Competitive Advantages

- Ideal for asbestos sampling and for oil-mist sampling for 42 CFR Part 84 respirator selection.
- Exceptionally compact, lightweight and quiet in operation.
- Unit can be exposed to water spray while operating.
- Stainless steel-filled plastic case protects against electromagnetic (EMI) or radio-frequency interference (RFI).
- Two controls - an ON/OFF key and a flow-rate potentiometer behind tamper-resistant cover helps to prevent unauthorized access to control functions.
- Three-gasket seal makes unit resistant to water spray and dust.
- One-way valve allows pump exhaust to vent and to prevent water entry.
- Full eight-hour shift of operation before charging is necessary.

Approvals and Standards

Escort LC Sampling Pumps are classified by UL as intrinsically safe for use in hazardous locations – Class I, Groups A, B, C and D; Class II, Groups E, F and G; and Class III, Division I locations.

Ordering Information

Part Number	Description
711400	Escort LC Pump with 110v single-unit charger, sampling line and standard packaging
711586	(Oil Mist Sampling for 42 CFR Part 84) includes Escort LC Pump, 100v charger, and ten 37 mm MCE filter cassettes

The Assemble-to-Order (ATO) System

The ATO System is not only easy to use, it's fast too. In selecting the instrument and accessories, customers can create their own model number for ordering convenience. Please refer to the Escort ELF and Escort LC Sampling Pumps ATO. See www.msanorthamerica.com for Bulletin #0810-33.



Escort LC Specifications

Operating Flow Control

Volumetric flow rate held within $\pm 10\%$ of set point over entire operating range, with automatic compensation for battery voltage, temperature and sample load changes of 10 inches of water.

Flow Rate

Flow rate adjustable between 0.5 and 3 lpm.

Operating Range

5-25 inches of water load up to 2 lpm;
5-20 inches up to 2.5 lpm with 20-inch water load.

Operating Temperature Limits

30°-113°F (0°-45°C); while charging,
50°-86°F (10°-30°C)

Physical Weight

18 oz. (510 g), with battery pack.

Dimensions

2" D at 4" H x 3 3/8" W
(5.1 cm x 10.3 cm x 9.8 cm), with battery pack.

Serial Number Identification

Located on the side of the case
under battery pack.

Power Supply

4.8-volt battery pack of four nickel
cadmium cells.

Battery Pack Capacity

1.8 ampere hour.

Dimensions

2" D x 4" H x 3 3/8" W
(5.1 cm x 10.3 cm x 9.8 cm), with battery pack.

Power Supply

Battery Pack Recharge Time

14-16 hours (overnight) with Omega™ Charger.

Typical Battery Pack Life

300 or more charging cycles

Escort ELF and Escort LC Pump | Accessories and Replacement Parts

Part Number	Description
497702	Battery pack with o-ring for Escort ELF Pump
802897	One replacement inlet filter for Escort ELF Pump
802922	Escort ELF Pump overhaul kit (contains common routine maintenance components)
808935	Inlet dust filters (package of 5)
811741	Leather case
814029	Upgrade from Escort ELF Pump 3-control model to 4-button keypad model
456243	Cyclone Assembly
456226	Sampling line
497697	Gemini Twin-Port Sampler
10044015	Cyclone Assembly for use with 37 mm non-MSA cassettes

For a complete listing of our sampling accessories, visit www.msanorthamerica.com for Bulletin #08-09-01 and P/N 814473 Air Sampling Guide.

CALIBRATION DEVICES

The calibration of a sampling pump is critical to the quality of samples taken. Calibration determines that the flow rate of air through the pump is accurate, within specified limits, usually $\pm 5\%$. Sampling pumps should be calibrated with a representative pneumatic load. A primary calibration device, the DigiCal™ Calibrator provides instantaneous calibration for instruments like the MSA Escort LC Pump or the secondary flow standard inside the Escort ELF Sampling Pumps. Just press the plunger and the DigiCal Calibrator does the work. Its unique flow cell replaces conventional bubble tubes and makes calibration easier. The DigiCal Calibrator achieves extreme accuracy by utilizing a computerized flow meter that provides instantaneous flow readouts on a digital display.

Accurate measurements are possible within $\pm 0.5\%$ at any altitude.

The DigiCal Calibrator can be used to calibrate the secondary flow standard inside MSA's Escort ELF Sampling Pump.

Part Number	Description
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655101	DigiCal Calibrator
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Secondary Calibration Devices

Part Number	Description
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490197	Flowmeter, 0.2 to 0.4 lpm
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490198	Flowmeter, for use with Gemini Twin-Port Sampler, 30 to 370 mlpm
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Note: This Bulletin contains only a general description of the products shown. While uses and performance capabilities are described, under no circumstances shall the products be used by untrained or unqualified individuals and not until the product instructions including any warnings or cautions provided have been thoroughly read and understood. Only they contain the complete and detailed information concerning proper use and care of these products.



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