Fire & Safety

Sample Bid Specification

3M™ Scott™ Vision C5 Facepiece with E-Z Flo C5 Regulator

Facepiece Requirements

- The facepiece shall consist of the following components: (1) facepiece lens; (2) face seal; (3) head harness; (4) nose cup; and (5) multi-directional voicemitters.

Regulatory Approvals

- The facepiece, when used as a component of a respirator, shall be compliant to NFPA 1981: Standard on Open-Circuit Self-Contained Breathing Apparatus (SCBA) for Emergency Services, 2018 Edition.
- The facepiece shall meet ANSI Z87.1-2015 standard for “impact” rating.

Facepiece Assembly

- The facepiece shall have a large diameter inlet that enables both unrestricted breathing and voice communications, while also allowing for rehydration (oral) without having to remove the facepiece.
- The facepiece shall enable connection of the mask-mounted regulator by way of a quarter (1/4) turn rotation in a single direction.
- The facepiece shall interface with the mask-mounted regulator, without the use of tools, with an audible click to assure the user that the regulator is properly seated.
- The facepiece shall be available in three sizes, marked “S” for small, “M” for medium and “L” for large.
- The facepiece sizes shall be color-coded for ease of identification.
- The facepiece nose cup assembly shall be available in three sizes, marked “S” for small, “M” for medium and “L” for large.
- The facepiece, including head harness, shall not be made with natural rubber latex.
- The facepiece shall include a face seal that is secured to the lens by a U-shaped bezel using no more than two fasteners.
- The face seal shall be a single-reflex design for enhanced comfort and easier donning.
- The facepiece shall contain inhalation valves that are contrasting in color and readily visible to enable quick visual inspection.
- Multi-directional voicemitters shall be recessed on both sides of the facepiece and ducted directly to an integral silicone nose cup to enhance voice transmission around the user.
- The facepiece shall meet the requirements of the NFPA 1981, 2018 Edition standard for nonelectronic communications.
- The face seal shall provide a landing area with ridges to help optimize the interface with protective hoods.
- The facepiece shall incorporate attachment points for an optional accessory neck strap.
- The facepiece assembly shall be modular in design to enable ease of upgrading and serviceability.
- The facepiece shall incorporate a RFID tag for asset and maintenance tracking.
- The facepiece shall be capable of submersion for cleaning and disinfecting.

Facepiece Lens

- The lens is a component of the facepiece assembly and shall be a single, replaceable, modified-cone configuration, constructed of a high-temperature and radiant-heat-resistant, shatter-resistant type polycarbonate material.
- The lens shall be coated to resist abrasion and meet the requirements of NFPA 1981, 2018 Edition standard for lens abrasion.
- The lens shall have an internal coating to reduce fogging of the lens.
- The lens shall meet the requirements of the NFPA 1981, 2018 Edition standard for radiant heat and elevated temperature heat and flame resistance tests.
- In accordance with NIOSH 42 CFR part 84, the facepiece shall meet the penetration and impact requirements, including compliance with ANSI Z87.1 – 2015.

Head Harness

- The head harness is a component of the facepiece assembly and shall have five points of suspension connection, four of which shall be adjustable, made in the fashion of a net hood to minimize interference between securing of the facepiece and the wearing of head protection.
- The head harness shall be constructed of a para-aramid material for fire, first responder and CBRN applications.
- The head harness shall include an integrated handle to assist with donning of the facepiece.
- Two elastomeric straps, attached to the face seal in four locations, shall provide adjustment for proper seal to the face.
- The head harness shall be available in three sizes to accommodate persons of varying facial shapes and sizes.
- The head harness shall be designed for easy removal from the facepiece to assist with cleaning and serviceability.

Regulator

- The mask-mounted regulator shall maintain positive pressure during flows of up to 500 standard liters per minute.
- The mask-mounted regulator shall be available in a continuous hose configuration, with an optional inline quick disconnect coupling.
- The optional quick disconnect coupling shall be easily connected and disconnected by trained individuals with a gloved hand and in limited visibility conditions.
- The optional quick disconnect coupling shall be guarded against inadvertent disconnect during use of the equipment.
- The low-pressure hose shall be equipped with a swivel attachment at the mask-mounted regulator.
- The mask-mounted regulator shall connect to the facepiece by way of a quarter (1/4) turn rotation in a single direction.
- An audible click shall provide notification that the mask-mounted regulator is securely attached to the facepiece.
- The mask-mounted regulator shall be equipped with a gasket to provide a seal against the mating surface of the facepiece.
- The mask-mounted regulator cover shall be fabricated of a flame resistant, high impact plastic.
- The mask-mounted regulator shall reactivate and supply air only in the positive pressure mode when the user affects a face seal and inhales.
- The mask-mounted regulator shall have a demand valve to deliver air to the user, activated by a diaphragm responsive to respiration.
- The diaphragm shall include an integrated exhalation valve.
- The mask-mounted regulator shall include a purge valve for use as an emergency bypass.
- The mask-mounted regulator shall be designed to direct the incoming air through a spray bar and over the inner surface of the facepiece lens for defogging purposes.
- The mask-mounted regulator shall incorporate a Heads-Up Display (HUD) to provide visual alerts to the SCBA user of air status and critical alarm conditions.
- The HUD shall be recessed into the mask-mounted regulator body to help improve downward visibility through the facepiece.
- The HUD shall provide visual alerts to the SCBA user for electronic personnel accountability report, evacuation, and system integrity alarm.
- The mask-mounted regulator shall incorporate status lights to assist with remote identification of a user's SCBA air remaining.
- The mask-mounted regulator shall incorporate a latch mechanism to enable removal from the facepiece.
- When fully engaged, the latch mechanism shall act as an auto air-saver switch to stop the air flow.
- An audible click shall provide notification that the latch is fully engaged, and the air-saver switch has been activated to stop the air flow.
- The mask-mounted regulator shall require a quarter (1/4) turn rotation in a single direction for removal from the facepiece.

Voice Communications (Optional)

- The facepiece assembly shall be configurable to allow for the integration of wireless radio direct interface (RDI) communications.
- The facepiece assembly with optional radio direct interface shall be compatible with select Bluetooth® wireless technology enabled field radios.
- The facepiece assembly with optional radio direct interface shall provide in-mask communications to enhance voice intelligibility during two-way communications.
- The facepiece assembly with optional radio direct interface shall be available with optional bone conduction headphone (BCH) to enhance operator hearing and understanding of incoming radio communications.
- The facepiece assembly with optional radio direct interface and bone conduction headphone shall incorporate automated voice prompts to provide the operator with verbal notification of changing system conditions.
- The facepiece assembly with optional radio direct interface shall have an integrated volume switch to allow the operator to adjust volume level based on hearing acuity and environmental conditions.
- The facepiece assembly with optional radio direct interface shall have a single button for powering on/off the electronics, with a visual LED indication of power status and Bluetooth radio connect status.
- The facepiece assembly with optional radio direct interface shall be powered by an intrinsically safe, lithium-ion rechargeable battery for up to 15 hours of continuous run-time.
- The lithium-ion battery shall be removable from the facepiece to allow for charging.
- The facepiece assembly with optional radio direct interface shall be software configurable using an iOS or Android™ compatible mobile application.
- The facepiece assembly with optional radio direct interface shall enable continuous operation when transitioning between tactical (on air) and non-tactical (off air) use.

Voice Communications: Charger (Optional)

- The charger assembly shall be designed for use in a vehicle-mount or desktop installation
- The charger assembly shall meet the requirements of NFPA 1901: Standard for Automotive Fire Apparatus, 2016 Edition, for equipment mounting.
- The charger assembly shall be designed such that two batteries may be charged simultaneously.
- The charger assembly shall display battery charge status.
- The charger assembly shall be powered using an AC or DC power supply.
- The charger assembly shall have an option for a hard-wired connection to a vehicle power supply.
- The charger assembly shall be designed such that multiple charging cradles may be daisy-chain connected using a single power supply.

Warranty

- The facepiece assembly shall be warranted to be free from defects in workmanship and materials for as long as the original purchaser owns the product.
- Commonly-used parts are field replaceable.

Accessories

- An optional neck strap that meets the accessory design requirements of NFPA 1981, 2018 Edition shall be offered to carry the facepiece in a ready position.
- A prescription lens kit shall be offered to accommodate different user needs.

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