

Sealed Bid Notice
Self-Contained Breathing Apparatus and Related Equipment
Bid Year 2021

City of Jonesville
October 12, 2021

The City of Jonesville will be accepting sealed bids until 2:00 p.m. EST on Thursday, November 4, 2021 at the City Office, 116 W. Chicago Street, Jonesville, Michigan 49250, for the purchase of Self-Contained Breathing Apparatus and Related Equipment. Specifications for product are listed below.

Purchase of Self-Contained Breathing Apparatus and Related Equipment:

Amount	Description	
63	SCBA (Harness, bottle, mask)	\$ _____
63	Compressed Air Cylinder (Air Bottle)	\$ _____
18	Batteries	\$ _____
3	Battery Chargers	\$ _____
	BID TOTAL	\$ _____

All bids must be firm for not less than 60 days after official opening of bids.

All bids must contain warranty information on the product being installed.

The City of Jonesville reserves the right to accept or reject any or all bids.

Any questions may be directed to Kurt Etter at (517) 849-2101 or at ketter@jonesville.org

All bids must be submitted in a sealed envelope clearly marked on the outside, "Sealed Bid – Self-Contained Breathing Apparatus."

Sealed Bid Notice
Self-Contained Breathing Apparatus and Related Equipment
Bid Year 2021

City of Jonesville
November 4, 2021

NAME OF COMPANY _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

BY _____

TITLE _____

TELEPHONE _____ FAX _____

DATE _____

EMAIL _____

**Self-Contained Breathing Apparatus and Related Equipment
2021 Bid Packet
Product Specifications**

Intent of Specifications

The City of Jonesville Fire Department, acting as the host agency, and participating agencies from the City of Hillsdale Fire Department, and City of Litchfield Fire Department are seeking bids for the following:

Amount	Description
63	SCBA (Harness, bottle, mask)
63	Compressed Air Cylinder (Air Bottle)
18	Batteries
3	Battery Chargers

Any product that is bid must have current NIOSH and NFPA approval at the time of the bid opening. Any product that is not approved but is bid will be grounds for rejection of that bid.

Warranties

Unless otherwise stated, all equipment shall be new manufacture and shall carry full factory warranties. The bid contractor warrants all equipment and supplies delivered to be free from defects in labor, material and manufacture and to be in compliance with warranty stipulated in the bid specifications.

Service and Warranty Support

To ensure full dealer support for service after the sale, the selling dealer must be capable of providing full factory service when required. The bidder must state the location of its authorized service center. The service center must have a staff of factory recognized personnel and be located within 150 miles of Jonesville, Michigan.

Delivery

All deliveries shall be made to the Jonesville City Fire Department, with all transportation and handling charges prepaid by the bidder. Responsibility and liability for loss or damage shall remain with the bidder until final inspection and acceptance by the respective participating agencies, at which point responsibility will pass to the respective participating agency. Exceptions to the above include latent defects, fraud, and manufacturer's warranty obligations.

Before delivering the SCBA to the Jonesville City Fire Department, a function test shall be performed on each SCBA. This shall be a complete function test as required by MIOSHA Part 451 Respiratory Protection (OSHA 29 CFR 1910.134). This is to ensure the SCBA are in complete working order when delivered. Upon

delivery, a copy of the computer-generated report shall be provided with each unit to verify that each unit has been tested. All battery-powered equipment shall be delivered with sufficient rechargeable batteries included to operate that unit.

The bid shall include certification documents that verify the units bid meet the current NIOSH and NFPA standards. In order to be considered for purchase, the equipment the bidder is providing pricing for must have existing NIOSH and NFPA approvals and documentation of those approvals must accompany the bid documents or the bid for that equipment will be considered invalid.

General Self-Contained Breathing Apparatus Requirements

The purpose of these specifications is to establish the minimum requirements for the Self-Contained Breathing Apparatus. The SCBA shall consist of the following major sub-assemblies:

- Full face piece assembly
- A removable face piece mounted positive pressure breathing regulator with air saver switch
- An automatic dual path redundant pressure reducing regulator
- End-of-Service Time Indicators (EOSTI)
- Harness and back frame assembly for supporting the equipment on the body
- A shoulder strap mounted remote gauge indicating cylinder pressure
- A Universal Emergency Breathing Safety System (UEBSS)
- Cylinder and valve assembly for storing breathing air under pressure
- Integrated personal alert system

Facepiece

1. Facepiece shall have removable inhalation check valve to prevent exhaled air from entering and contaminating regulator (demand valve).
2. Facepiece shall have open port to provide minimal breathing resistance when regulator is not attached.
3. Facepiece shall not contain electronic components.
4. Facepiece shall provide means to display to user with visual indicators for HUD.
5. Facepiece shall have icon for HUD system status indicators.
6. Facepiece shall have regulator attachment that does not bear any weight on lens.
7. Facepiece shall have effective field of view of 86% and overlapping field of view of 122% without attached component.
8. Facepiece shall be available in three sizes in Hycar Rubber (small, medium, large).
9. Facepiece shall have nose cup comprised of silicone rubber and available in three sizes (small, medium, large).
10. Facepiece head harness shall be constructed of flame/heat resistant assembly: Kevlar Head Harness 4-pt. adjustable.
11. Facepiece shall have universal lens that can be used with all three facepiece sizes, shall be comprised of non-shatter type material and shall be field-replaceable.
12. Lens shall be hard-coated on outside and anti-fog coated on inside.
13. Facepiece shall have flame/heat-resistant fabric neck strap to carry facepiece in ready position for

quick donning.

14. Facepiece shall have removable speaking diaphragm with aluminum-coated membrane, suitably protected and located centrally on facepiece for optimal voice projection.
15. Facepiece shall have exhalation valve that is to be serviceable without special tools.
16. Facepiece shall be capable of water submersion for cleaning and disinfection.

Mask-Mounted Regulator (Demand Valve): Push-to-Connect

1. When doffing regulator, regulator disengagement shall simultaneously stop air flow and release regulator.
2. Regulator shall house electronic module that functions as microphone and HUD system.
3. Regulator shall be equipped with variable flow bypass.
4. Regulator shall not have exposed wiring in order to prevent snags and increase product durability.
5. Regulator shall have a hard cover.
6. Regulator shall have fewer than 35 parts that are easily replaceable without special tools.
7. Regulator must be equipped with positive protection Tetraplex Shield membrane that covers diaphragm preventing permeation of CBRN agents.

Heads-Up Display (HUD)

1. Heads-Up Display (HUD) System shall be integrated within regulator, eliminating snag hazards and increasing product durability.
2. HUD shall be powered from central power system.
3. HUD System shall eliminate cross-talk among firefighters.
4. HUD System shall be immune to radio frequency interference (RFI) and must function properly in close proximity to fire service hand-held radios.
5. HUD System shall separate pressure indicators from status indicators:
 - 1) Left: status indicators
 - 2) Right: pressure indicators
6. HUD system shall provide user with remaining cylinder air volume, available in four increments through series of four colored LEDs:
 - 1) Four green lights 76-100% cylinder volume
 - 2) Three green lights 51-75% cylinder volume
 - 3) Two flashing amber lights 36-50% cylinder volume
 - 4) One flashing red light 0-35% cylinder volume
7. HUD status indicators shall be icon-based and display battery life warning, PASS alarms, EVACUATE indicator, and secondary alarm indicator.
8. HUD shall incorporate photoelectric sensor that senses ambient light conditions, automatically adjusting display to one of multiple pre-programmed light intensities.
9. Buddy lights shall be visible from outside of firefighter's facepiece.

Universal Air Connection (UAC)

1. System shall be capable of:
 - 1) Refill within immediately dangerous to life or health (IDLH) atmospheres.
 - 2) Transfilling between two SCBA wearers (connection allows for donation and receipt of air), providing emergency breathing system (EBS) while maintaining NIOSH approvals.
 - 3) Quickly refilling (approximately one-minute duration) SCBA cylinder from mobile compressor, cascade system or RIT pack.
 - 4) Extending wearer's air supply over longer duration when remote cascade system or other compressed gas source is located within remote area.
2. Primary UAC shall be illuminated when supply pressure reaches Low Pressure Warning Alarm or can be configured to optional medium pressure warning alarm.
3. SCBA shall have secondary options for UAC to be mounted on user's waist.
4. Transfilling is possible only with 4500 & 2216 psig.

Pressure Reducer (First-Stage Regulator) with Primary Low-Pressure Warning Device

1. Pressure reducer shall incorporate downstream valve to ensure fail-safe design when in open position.
2. Pressure reducer shall incorporate bell alarm mechanism.
3. Bell alarm mechanism shall be an air-actuated, continuously ringing audible warning alarm, automatically operating when supply cylinder air pressure reaches approximately 35% of rated service life.
4. Bell alarm mechanism shall cover multiple levels of frequencies to cover all hearing levels.
5. Bell alarm mechanism shall be user-accessible while wearing SCBA.
6. Pressure reducer reduces cylinder pressure to outlet pressure not to exceed 115 psi; outlet pressure must be adjustable.
7. Pressure reducer shall have flow capacity of 700 liters per minute at full pressure.
8. Pressure reducer shall be threaded connect.
9. Pressure reducer shall have one option for cylinder connection location: remote connection.
10. Pressure reducer body shall be constructed of high-strength aluminum alloy and anodized with Teflon hard coat to minimize corrosion and wear of internal and external components.
11. Pressure reducer shall be sealed system that does not allow moisture to enter valve components.
12. Pressure reducer shall have no more than 42 individual regulator replacement parts.
13. Pressure reducer shall not require special tools for disassembly.
14. Pressure reducer shall have two accessory ports, one medium pressure and one high pressure.

Cylinders

1. Cylinders shall be 4500 psig operating pressure and must be 45-minute durations.
2. Cylinder shall be constructed of deep-drawn, seamless aluminum liner that is fully wound over entire surface (except for thick neck area) with high-strength carbon fiber filaments impregnated with epoxy resin.
3. Cylinder shall contain cylinder valve that shall incorporate pressure gauge to indicate cylinder pressure at all times. Pressure gauge face shall be luminescent. Hand wheel shall be placed at 90° angle from cylinder axis.
4. Remote connection shall be threaded.
5. Cylinder valve shall incorporate flow control insert to limit air flow over hand wheel's first half-rotation minimizing propulsion thrust in event that cylinder is mishandled.
6. Cylinder shall have bracket and boot that can be user-installed and provide positioning and added security of cylinder to backplate.

PASS Device

1. PASS device shall contain power, control and battery modules.
2. Power module shall provide power to all electronic SCBA components from battery module and act as central power system.
3. Power module shall act as central command center, distributing all information and data among electronic components.
4. Battery module shall be powered by one lithium-ion rechargeable battery.
5. PASS device shall design for battery level check and removal of batteries while SCBA remains in jump seat.
6. Power module shall be capable of illuminating UAC fitting when supply cylinder reaches 35% of rated service time.
7. Control module shall have analog and digital display for added redundancy. Analog gauge must be positioned above digital display as viewed by user.
8. Control module shall be equipped with full color graphical display. Display shall be reprogrammable and capable of future integrations. Display's background color coordinates with HUD pressure status.
9. Control module shall automatically provide information to user when placed in upright position. Device can be manually activated by pressuring reset button.
10. PASS device shall use single line to connect power and control module.
11. Control module shall have two reset buttons that perform same function no matter which button is pressed.
12. Control module shall have alarm button to activate full alarm and is to be illuminated.
13. PASS device shall be capable of being reprogrammed to fire department standard operating procedures (SOP).

Using PC software program, configuration tag can be created and tagged on each device needed.

Reprogramming options are as follows:

- 1) Medium pressure alarm.
 - 2) Pressure drop alarm.
 - 3) Primary temperature alarm.
 - 4) Secondary temperature alarm.
 - 5) Audible low-pressure alarm
14. PASS device shall be equipped with buddy lights on firefighter's front and back and viewable from 360° view; two buddy lights on front of user and four buddy lights in back of user.

15. PASS device shall have colored buddy lights: green (pressure above 50% and no alarms), yellow (pressure between 36 and 50%) or red (below 36% or alarms are active).
16. Power module shall be equipped with dual sound emitters; sound emitters shall perform at minimum 100 dBa in room temperature.
17. PASS device shall be capable of storing up to 36 hours of use information in event log form that are generated each time SCBA is pressurized. Event logs must indicate on/off cycles, alarms, alarm reset, and tagging events.
18. PASS device shall be capable of storing periodic logs. Periodic logs must indicate cylinder pressure for each SCBA pressurization stored at 30-second intervals.
19. PASS device's event and periodic logs shall provide ability to download to personal computer for maintenance records or for use in incident investigations.
20. PASS device shall be immune to radio frequency interference (RFI) and must function properly in close proximity of fire service hand-held radios.
21. PASS device shall have optional time-remaining display. Time remaining function must update calculations every 30 seconds based upon user's previous three minutes of air consumption. Initial calculation will appear after three minutes. Calculations can be made to zero pressure, low pressure alarm or medium pressure alarm.
22. PASS device shall employ gasket perimeter seal to provide highest protection level against water ingress, while providing ability to upgrade or repair electronics.
23. PASS device shall be capable of electronically storing user's name into memory via ID tag.
24. PASS device shall be removable with no more than two screws.
25. Control module shall have service mode that provides ability to see number of hours used, connect to PC and firmware versions.
26. Control module shall incorporate rubber boot for added protection and is to be replaceable.

Speaker Module

1. Speaker module shall provide amplified speech that removes inhalation breath noise.
2. Speaker module shall provide at minimum, 70 dBa output.
3. Speaker module shall turn on and off with PASS device.
4. Speaker module shall be powered by central power system.
5. Speaker module shall be positioned on chest and attached to shoulder straps.
6. Speaker module shall be capable of being mounted on either left or right shoulder strap.
7. Speaker module shall easily be attached and removed without special tools.
8. Speaker module shall have light to indicate that device is powered on.
9. Speaker module shall have on/off button to allow user to manually power off as needed.

Carrier and Harness

1. Shoulder harness shall have separate left and right pads for easier and less costly replacement.
2. Shoulder harness shall have retro-reflective markings for better visibility within low light conditions.
3. Shoulder harness shall have localized friction pads on shoulders to prevent slippage.
4. Shoulder harness shall be available in standard and serviceable tunnel.
5. Shoulder harness shall have improved color stability up to 600°F.
6. Shoulder harness shall be capable of washing at least 40 times while maintaining color fastness.
7. Shoulder harness shall have chest strap.
8. Harness design shall have Kevlar webbing.
9. Shoulder harness shall have accessory attachment point available for facepiece or pouch and can be easily moved from one shoulder strap to the other.
10. Shoulder harness shall differentiate pad inside from pad outside by color; pad inside is grey and outside is black.
11. Waist pad shall be Adjustable swiveling – standard pad attached to metal bracket that has three positions and automatically centers.
12. Adjustable swiveling waist pad shall be one-handed operation and can be performed while on user's back.
13. Backplate shall have two side handles and one top handle that are accessible with gloved hand.
14. Backplate side handles shall be capable of 500 lbs. of static force.
15. Backplate top handle shall be capable of 1000 lbs. of static force.
16. Backplate cylinder band shall be metal.
17. Waist pad shall be of rigid construction to allow for easy donning and support.
18. Waist straps shall be double-pull forward design.
19. Harness design shall have regulator keeper for storage that can be attached to waist strap or chest strap.
20. Regulator keeper shall allow regulator to be connected at any angle.

Power Source

1. All components of the SCBA must be powered from single power source.
2. Power source must be rechargeable.
3. Rechargeable battery must weigh no more than 1lb.
4. Rechargeable battery must recharge from full discharge in less than 7 hours.
5. Rechargeable battery recharge temperature range must fall between 32°F and 104°F.
6. Rechargeable battery will have full charge capabilities for no less than 300 cycles.
7. Rechargeable battery Charger must be a smart charger which will rapid charge, analyze condition, and switch to trickle charge mode when charge is complete.
8. Rechargeable battery Charger must have charging indication lights.

Upgradeability

1. Must be Bluetooth® enabled.
2. Must have the ability to upgrade standard control module to integrated thermal imaging camera control module.