DESTIN FIRE CONTROL DISTRICT

Request for Bids:
High Pressure Compressed Breathing Air System

May 10, 2017
High Pressure Compressed Breathing Air System Specifications

1.0 INTENT

It is the intent of this specification to provide for the purchase of new equipment to be used by the Destin Fire Control District (DFCD).

The Destin Fire Control District will receive bids for the purchase of equipment for a High Pressure Breathing Air System until June 2, 2017, at 12 noon CST. All bids received must be marked on the outside of the envelope **High Pressure Compressed Breathing Air System** and meet the specifications as described herein.

The Destin Fire Control District has evaluated different styles of compressors and has determined that this published specification is best suited for the DFCD’s needs in terms of quality and features. This specification shall not be interpreted as restrictive but rather as a measure of quality and performance against which all other systems will be compared.

In comparing bids, comparison will not be confined to price only. The successful proposer will be one whose product is judged as best serving the interest of the DFCD when price, product, quality and delivery are considered. The DFCD also reserves the right to reject any or all proposals or any part thereof, and to waive any minor technicalities.

The compressed air system shall be a high pressure breathing air system. The required high pressure breathing air system, as listed herein, shall be a single “free standing” complete unit. The system shall be factory assembled and tested to assure quality and reliability. Equipment, ancillary components, installation requirements, testing, and certifications required at the installation site shall be stated within this specification. The system and components identified herein shall be complete and integral part of the compressor package.

The system shall be installed, piped, and electrically wired by the successful bidder at the following location:

Destin Fire Control District
848 Airport Road
Destin, Florida 32541

Questions regarding this RFP can be directed to the following individuals:

Battalion Chief Taylor
Battalion Chief Bronson Coleman
Battalion Chief Mark Hutchinson
Phone (850) 837-8413

2.0 EQUIVALENT PRODUCT

Bids will be accepted for consideration on any make or model that is equal or superior to the equipment specified. Decisions of equivalency will be at the sole interpretation of the DFCD. A blanket statement that equipment proposed will meet all requirements will not be sufficient to establish equivalence. An original manufacturer’s brochure of the proposed product is to be submitted with proposal.
3.0 INTERPRETATIONS

In order to be fair to all proposers, no oral interpretations will be given to any proposer, as to the meaning of the specification documents or any part thereof. Every request for such a consideration shall be made in writing. Based on such inquiry, the DFCD may choose to issue an Addendum in accordance with local state laws.

4.0 GENERAL

The specification herein states the minimum requirements of the DFCD. All proposals must be regular in every respect. Unauthorized conditions, limitation, or provisions shall be cause for rejection. The DFCD will consider as irregular or non-responsive any and all proposals that are not prepared and submitted in accordance with the proposal document and specification, or any proposal lacking sufficient technical literature to enable the DFCD to make a reasonable determination of compliance to the specification. It shall be the proposer’s responsibility to carefully examine each item of the specification. Failure to offer a completed proposal or failure to respond to each section of the technical specification will cause the proposal to be rejected without review as non-responsive. All variances, exceptions and/or deviations shall be fully described in the exceptions and deviation section of the proposal. Deceit in responding to the specification will be cause for rejection.

5.0 SPECIFICATIONS

1. Breathing Air Compressor:
   a. Compressor
      i. The compressor block shall be four (4) stage, air cooled, pressure oil lubricated of “V” configuration and rated for continuous duty at 6000 psig with a charging rate of 14.0 cfm.
      ii. Lubrication pressure for the provided compressor pump shall have a “low” pressure range of 40 – 60 psig. High-pressure lubrication for compressor will not be acceptable.
      iii. Compressor system requiring auxiliary cooling fans or cool down cycles will not be acceptable. The crankcase shall be of all cast iron construction, fully enclosed and support an iron crankshaft with oversized ball bearings on each end. Each connecting rod shall be equipped with needle bearings on each end. All pistons shall be of the captive design, manufactured of aluminum or steel and incorporate rings on all stages. Cylinders shall be of aluminum or cast iron construction with deep cooling fins to provide maximum heat dissipation.
      iv. The compressor flywheel shall incorporate a high velocity fan to remove heat from the compressor. Individually mounted intercoolers shall be utilized after each stage of compression and the aftercooler shall be designed to deliver final air at a temperature not to exceed 21 degrees F above ambient. Suction and delivery values shall be designed in such a manner that they can be replaced without replacing the entire assembly. Value inspection covers are to be provided on the first and second stage cylinders. Relief values shall be utilized after each stage of compression.
      v. The pressure lubrication system (low pressure design) shall supply metered quantities of lubricant directly to the fourth stage piston through a regulator and replaceable spin-off type, full flow filter. The oil pump shall be directly driven off of the crankshaft. An oil level sight glass shall be provided for checking the crankcase oil level.
      vi. An automatic electric timed drain system shall be supplied to periodically discharge accumulated condensation during operation and whenever the unit shuts down.
      vii. The compressor manufacturer shall have an ISO 9001 quality management system standard approval on the design and manufacture process.
b. **Salient Characteristics:**
The compressor package shall have the following essential items and be integral to this air system's design. Substitution of these required components to include package design shall not be allowed unless approved by the Destin Fire Control District. Bidder shall provide with his/her bid any/all substitutions subject items A – F inclusive below:

i. Low oil pressure configuration not to exceed 60 psig
ii. Tandem piston “V” configuration design
iii. Composite 4th stage piston rings
iv. Compressor pump RPM not to exceed 1350
v. CO monitor shall be provided with automatic calibration

**Note:** Failure to provide Salient items A – F inclusive shall disqualify a bid.

c. **Compressor Enclosure:**
   i. The outer compressor frame shall be of heavy-duty welded two-inch square tube. The compressor component of the breathing air system shall be fully enclosed with solid steel panels, minimum thickness 14 gauge. All sections of the compressor enclosure shall be lined with sound absorbing material. An air ducting system that allows against-the-wall installation by drawing cooling air from below the unit and directing it upwards and away from the operator and control panel shall be provided.
   
   ii. Insulated and gasketed maintenance access doors equipped with quarter-turn latches shall be located on the side and on the front of the compressor system. Latches shall be designed to draw the access doors into the frame opening. Male-female hinges on doors shall be used to allow their fast and easy removal without requiring hand tools.
   
   iii. A louvered panel shall be provided allowing for unrestricted cooling airflow and shall be designed to minimize transmission of noise. The louvers shall be located in the top of the breathing air system so any noise transmitted is directed away from the operator and bystanders.

d. **Auto Drain Muffler/Reservoir:**
   i. An automatic drain muffler/reservoir system shall be integral to the compressor package and manufactured of 14 gauge steel and designed to capture discharge condensation without the need for piping to the outside and to reduce the discharge noise level. A conveniently located value shall be supplied within the enclosure to periodically drain the condensation accumulated in the muffler reservoir at atmospheric pressure.

e. **Electric Motor:**
   i. NEMA designed B, 2-pole, ten (10) horsepower; open drip proof “ODP” motor shall be furnished for 3 phase, 60 hertz, 460 volts.
   
   ii. The motor shall be suspended underneath the compressor baseplate. This baseplate shall incorporate rubber shock mounts, which isolate vibration from the rest of the cabinet.
   
   iii. The V-belt drive shall be guarded to meet OSHA requirements.

f. **Purification System:**
   i. The purification system shall process a minimum of 36,000 cf before cartridge replacement. The air delivered shall meet CGA grade “E” quality standards.
   
   ii. The purification system shall be a multi-chamber arrangement each constructed of 7075T6 aluminum alloy with a tensile strength of 83,000 PSI and designed for 6000-PSI working pressure with a 4 to 1 safety factor. The first chamber shall be a mechanical separator to eliminate oil and water.
   
   iii. Subsequent chambers shall utilize replaceable filter cartridges constructed of high strength, non-corrosive FDA grade poly carbonate plastic. Non-corrosive stainless steel springs and spin welded end caps.
g. **Control System:**
The unit shall include all necessary controls to assure efficient operation and monitor compressor performance. All necessary electric motor controls shall also be included and rated for NEMA class 12. As a minimum, the control system shall include the following:

i. Air pressure switch to automatically start and stop the unit in order to maintain system pressure.
ii. High air temperature shutdown switch.
iii. Low oil pressure shutdown switch.
iv. Magnetic across-the-line starter with electric motor overload protection and 12VDC control voltage.
v. Power selector switch (auto-off), with power “on” light.
vi. Emergency stop button.

h. **Instrumentation:**
The unit shall include all necessary gauges and lights necessary to indicate all normal and shutdown conditions. All gauges, lights and indicators shall be mounted on a 14-gauge control panel centrally located on the front of the unit. The following additional instrumentation shall be provided:

i. Compressor interstage and final air pressure gauges.
ii. Oil pressure gauge.
iii. Hour meter.
iv. High air pressure shutdown light.
v. High air temperature shutdown light.
vi. Low oil pressure shutdown light.

Note: Maintenance timer device shall also be provided to ensure compressor maintenance to include purification filter maintenance is adhered to as required.

i. **Carbon monoxide monitoring system:**
The carbon monoxide monitoring system shall be integral of the compressor package and shall include the following design criteria:

i. The “CO” monitor shall be integral with the compressor package.
ii. The monitor shall be “tamper-resistant” to include a warning light, audible alarm & shutdown for high concentrations of “CO”.
iii. Monitor to detect “CO” concentrations from 0 to 50ppm. A digital readout shall continuously indicate the amount of “CO” in the compressed breathing air, and shall be capable of adjustment at any point on the monitor between 0 to 20 ppm for shutdown.
iv. Compressor package shall automatically signal recalibration is operational.
v. A solenoid valve shall be included to atomically stop the supply of air to the sensor when the compressor is not in operation to improve sensor life.
vi. Calibration kit shall be provided. A cylinder with “0” ppm gas and a second cylinder with 20 ppm of “CO” shall be provided to conveniently and accurately calibrate the monitor.
vii. “CO” gas and “CO” gas cylinders shall be installed and integral of the compressor package.
viii. Provide a shutdown audible package. The audible alarm shall be panel mounted and indicate abnormal operating conditions.

j. **Auxiliary Outlet:**
i. A regulated auxiliary outlet for remote filling with valve and quick disconnect fitting shall be provided.
2. **Stationary Containment Fill Station**
   a. **Fill Station** – Stationary containment fill station shall be NFPA 1901 compliant and will have an enclosed steel chamber in the event of a catastrophic cylinder failure. Loading height shall be ergonomic and designed to reduce operator fatigue. Bidder shall provide upon request test certificates of the fill station. In addition, the fill station shall meet the following:
   i. Operation panel will be painted steel with a screen overlay identifying all gauges and control values.
   ii. Loading height will be designed to reduced operator fatigue and strain.
   iii. Shall house up to 2 SCUBA cylinders with boots at one time.
   iv. Will have removable SCBA inserts.
   v. Shall have at least a 2 bank cascade control with dual valves per bank.
   vi. Will have an auxiliary outlet and an air storage bypass valve.
   vii. Shall provide both an SCBA and SCUBA yokes and DIN adapters.
   viii. Shall have an NFPA compliant “Push Action” adjustable regulator with inlet and outlet pressure gauges.
   ix. Shall be certified to contain a rupture of a 100 cubic foot cylinder pressurized to 6100 psi.
   x. Will have a 6000 psi service rating and a dual regulator fill package.

3. **Air Storage System:**
   a. **Air Storage System:**
      i. The air storage system shall be designed as a two bank, 6 bottle system with each bank containing 3 cylinders. Cylinders which are a part of the cascade system will be mounted and secured in a vertical position.
      ii. As part of the air storage system, each bank of cylinders will have a gauge to indicate the air pressure in each bank.
      iii. Storage cylinders provided with this bid will meet “UN/ISO” design standards. Cylinders shall be rated for 509cf (1.24cf/wv) at a design pressure of 6,000 psig. Cylinder shall be provided with service valve and burst disc. Required finish coat for the cylinder shall be “blue”.
      iv. Cylinder shall be properly cleaned allowing for acceptance of Grade “E” compressed air for the purpose of human consumption.
      v. Installation requirements have been identified under “Installation” which is a part of this specification.
      vi. The air storage system will be integrated into the stationary containment filling station.

4. **Complete System Installation:**
   a. **Installation:**
      i. The successful bidder shall provide the following installation services for the high pressure compressed breathing air system.
      ii. Successful bidder shall provide all required equipment/machinery to remove the existing air compressor package. Successful bidder’s equipment shall also be capable of providing proper placement of the compressor package and ancillary components as identified within this specification.
      iii. Clean existing surface area of debris, contaminants, and others allowing for proper placement of the new air system.
      iv. Install and secure the compressed air system to the provided foundation.
      v. Air compressor frame supports which contact the foundation shall be provided with isolation padding; anti-vibration rubber/cork type.
      vi. Provide high-pressure piping, hose(s), and/or tubing to include fittings from the air compressor package to the existing fill station. All materials shall be new and rated for a minimum for 6,000 psi. Piping, hose(s), and/or tubing internals shall be thoroughly cleaned of contaminants to include hydrocarbons and particulate matter prior to installation.
vii. Install the “un/ISO” 509cf air storage cylinder. The required single 509cf cylinder shall be aligned and mounted adjacent to the existing three (3) cylinders. Successful bidder shall provide required valves, connections, and tubing equal to the existing three (3) cylinders configuration. Tubing shall be seamless 316 stainless steel. Cylinder shall also be securely mounted as required by the Destin Fire Control District.

viii. Provide required electrical wire and conduit for connection(s) between servicemen’s disconnect and air compressor contactor. Successful bidder is to adhere to “NEC” standards throughout all phases of electrical installation.

ix. Upon completion of installation, testing, and warranty validation startup, successful bidder shall provide remedy for any/all installation defects within a seven (7) day period.

b. Air Sample: Grade “E”
   i. Successful bidder shall take an air sample upon completion of system startup and warranty validation. Air sample results shall be provided within five (5) working days to confirm Grade “E” compressed air for human consumption has been confirmed.
   ii. Certificate shall be provided by the authorized testing authority and issued to Destin Fire Control District confirming air sample taken meets Grade “E” standards.

5. System Warranty:
   a. Startup Warranty Validation – An authorized Manufacturer’s representative shall provide the following for warranty, equipment startup, and operational testing at the jobsite.
      i. Secure “air sampler” from air system upon completion of run testing to “ensure” Grade “E”, as identified per (CGA) G7.1-2011 Grade “E” air purity standards will be provided.
      ii. Test documentation confirming air purity grade “E” has been provided to include certificate by the authorized testing authority. Certificate shall be issued to the Destin Fire Control District. Grade “E” air purity is required as a minimum standard for the provided compressed air system.
      iii. Operational, service, and maintenance school shall be provided to Destin Fire Control District personnel to include review of compressor package operation functions, purification system, and the CO monitoring system.
      iv. Operational training shall be complete upon Destin Fire Control District’s personnel acknowledgement they have full understanding of the compressed air system and operation functions.
      v. Two (2) sets of operator’s and parts manuals for the compressor package secured in two (2) hard bound ring binders with index sheet and numbered tabs for component manual identification shall be provided to the Destin Fire Control District.

   b. Warranty:
      i. Warranty for the high pressure compressed air system shall be provided with a minimum five (5) year, 1,000 hour warranty.
      ii. Successful bidder shall provide Manufacturer’s statement of warranty for a minimum of a five (5) year warranty period with his bid submittals.
      iii. Successful bidder shall provide a one (1) year parts and labor for installation/fabrication services and materials provided.
      iv. Consumables, e.g., purification cartridges, oil filters, lubricant “makeup”, and soft war items shall not be part of warranty term requirements.
6. **Trade In:**
   a. **Trade in of a Mako CompAir Compressor System.**
      i. The Mako CompAir compressor system is made up of three components. The proposed trade in value of each component will be listed individually on the Expenditure Proposal form.
      ii. The three components to be traded in are: Mako CompAir breathing air compressor model Bam 05 5000 psi compressor with 533.75 hours, Mako stationary two bottle containment fill station, and a Mako four bottle air storage system containing three 6000 psi bottles.
      iii. It is the responsibility of each vendor to inspect trade in compressor system prior to submitting a bid. Trade in compressor system may be inspected by appointment at 848 Airport Road, Destin, FL 32541 Monday-Friday between 8:00 a.m. and 3:00 p.m. Trade in compressor system will be accepted by the winning bidder in “as is” condition and will be picked up by the winning bidder at the time the new high pressure compressed breathing air system is delivered and installed. The proposed trade in value of each of the 3 components shall be listed individually on the Expenditure Proposal form.
Destin Fire Control District -
Expenditure Proposal Form

High Pressure Compressed Breathing Air System
Closing Date: June 2, 2017 12pm CST

NOTE TO ALL BIDDERS
NO BIDS RECEIVED AFTER CLOSING WILL BE ACCEPTED.

All request for bids must be marked on the outside of the envelope 2017 High Pressure Compressed Breathing Air System and received by June 2, 2017, at 12 noon CST. Any failure to mark such on the outside of the sealed envelope as set forth herein may result in the request for bid not to be considered.

In compliance with the requirement of this specification (if applicable), vendor must submit with bid two (2) sets of descriptive literature or your bid may not be considered. Further, prices shall be held fixed for one year from date of award. Quantities listed are estimates, actual orders may vary more or less than indicated.

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<th>Equipment</th>
<th>Qty</th>
<th>Unit Price</th>
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<td>Breathing Air Compressor</td>
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<td>2.</td>
<td>Stationary Containment Fill Station</td>
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<td>3.</td>
<td>Air Storage System</td>
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<td>Complete System Installation</td>
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<td>5.</td>
<td>System Warranty</td>
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**SUBTOTAL** $__________________.

Trade In: Compressor $__________________.
Fill Station $__________________.
Storage System $__________________.

**TRADE IN TOTAL:** $__________________.

**TOTAL FOR ALL ITEMS** $__________________.

Please state Vendor Catalog Discount on all other items that are not listed in the bid. %__________________.
Exceptions & Deviations

Proposers shall fully describe every variance exception and/or deviation. List the item number here and fully explain any items in non-compliance with specification.

Additional sheets may be used if required.

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EXTENSIONS, TOTALS AND GRAND TOTAL, IF APPLICABLE, SHALL BE ENTERED IN SPACES PROVIDED. FAILURE TO COMPLY MAY RENDER YOUR BID INVALID.

DELIVERY MAY BE A FACTOR IN AWARD. PLEASE STATE DELIVERY SCHEDULE IN SPACE PROVIDED BELOW. FAILURE TO COMPLY MAY RENDER YOUR BID INVALID.

TERMS: BIDDERS ARE REQUESTED TO QUOTE NET PRICES. NET PRICES ARE LIST PRICES LESS TRADE OR OTHER DISCOUNTS OFFERED, EXCEPT CASH DISCOUNTS. IF A CASH DISCOUNT IS OFFERED, IT MUST BE CLEARLY SHOWN IN THE SPACE PROVIDED BELOW. IN ORDER FOR YOUR CASH DISCOUNT TO BE CONSIDERED IN THE BID EVALUATION PROCESS, THE DISCOUNT PERIOD SHALL BE A MINIMUM OF THIRTY DAYS. ANY DISCOUNT PERIOD OFFERED OF LESS THAN THIRTY DAYS WILL NOT BE CONSIDERED IN THE BID EVALUATION PROCESS. ALL DISCOUNTS OFFERED WILL BE TAKEN IF EARNED. TIME WILL BE COMPUTED FROM THE DATE OF ACCEPTANCE AT DESTINATION OR FROM DATE A CORRECT INVOICE IS RECEIVED IF THE LATTER DATE IS LATER THAN THE DATE OF ACCEPTANCE.

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TERMS _____% __30 Days

DELIVERY: Time Required for Delivery After Receipt of Order _______ Days

The undersigned, declares that they have read the provisions and specifications covering the purchase of equipment for fire truck. With full knowledge and understanding of the requirements, we do hereby agree to furnish equipment in full accordance with the specifications attached hereto and made a part hereof.

FIRM NAME: _____________________________________________________________

SIGNATURE: ____________________________________________________________

TITLE: __________________________________________________ DATE: ______________

ADDRESS: _____________________________________________________________

________________________________________________________________________

PHONE NUMBER: ___________________________