

**INVITATION TO BID**  
**February 8, 2010**

The City of Martin is requesting bids for an SCBA Fill Station for the City of Martin.

Bid Specification Packet can be downloaded from the City Of Martin website at [www.cityofmartin.net](http://www.cityofmartin.net)

Sealed bids must be submitted to the City Hall by 9:00 AM Central Daylight Time on February, 23 2010. Labeled Attn: Fire Department Equipment Bids

Bids can be mailed to: City Hall, 101 University Street, PO Box 290, Martin, TN 38237

On February 23, 2010 at 10:00 AM CDT Sealed bids will be opened and will be publicly read aloud. Bids received after 9:00 AM CDT on February 23, 2010 will be considered invalid and rejected by the City of Martin.

The City of Martin reserves the right to REJECT ANY and all bids. All bids will be considered final. No additions, deletions, corrections, or adjustments will be accepted after the time of bid deadline of 9:00 am.

All bids must meet or exceed the specifications.

A preference will be given to the best equipment, service, and warranty, which meet the City of Martin's specifications. Minority and female vendors are encouraged to respond.

The bidder assures that this bid shall be good and may not withdraw said bid for a period of sixty (60) days following the date of the bid opening.

Shipping and labor charges must be included in pricing.

Please return all bids marked on envelope:

Labeled Attn: Fire Department Equipment Bids

Mail bids to the following address:

City Hall  
101 University Street  
PO Box 290  
Martin, TN 38237

## **MUST WRITE “MEET” OR “DO NOT MEET” AFTER EACH LINE SPECIFICATION**

### **BID SPECIFICATIONS**

#### **AIR STORAGE RACKS**

##### **Vertical**

Vertical wall storage unit are designed as a freestanding wall unit that mounts to the wall.

They are mounted to the wall by a unistrut strap and mounting rail.

Shall include up to 8 DOT cylinders

The air storage system shall be an integral part of the charge station.

**\*\*DOT cylinder type shall be rated for 509 standard cubic feet @ 6000 PSIG.**

### **BID SPECIFICATIONS**

The system consists of a closed lid TOTAL CONTAINMENT CHAMBER FRAGMENTATION SHIELD (dry type), with rigid charge adapters, and a control panel.

The system can be a stand-alone or an integrated module.

The chamber shall have been designed and tested to withstand a one-hour cylinder rupture.

The test shall include charging the test cylinder to 100 cubic feet @ 5000 PSI before rupture.

The rapidly expanding air, and any fragments, shall be directed downward through blast vents, and away from any operators or spectators.

The lid shall have a heavy duty-locking handle and the open part of the hinge mechanism must be welded solid.

The system shall have the following features:

Two each, 2-1/2 inch 0-6000 PSI, SAFETY GAUGES which monitor the air available from the air compressor assembly and the air storage system.

A manual air storage valve that controls the recharging of the air storage system.

A check valve that allows the stored air to be automatically utilized in the charging process and prevents the stored air from re-entering the air compressor system.

A precision 2-1/2 inch, 0-6000 PSI SAFETY GAUGE, to measure the air delivered to the BACs being recharged.

A manually adjustable pressure regulator to provide automatic BAC recharging.

A soft seated charge control valves.

A safety relief valve to prevent overcharging of the BACs.

Two each charge adapters rigidly mounted, to avoid a burst fill hose from causing injury, to the fragmentation deflector, with bleeder valves. This unique connector style makes cylinder recharging easier, and faster

## **Cascade Air Control Panel**

The cascade air control panel shall have the following per bank: storage check valve, storage Pressure gauge, and storage outlet valve.

## **Bid Specifications**

The system shall be designed to tie into the air storage/charge station module.

This document describes the minimum requirements for a complete Cylinder Charge Station (CCS).

The system shall be modular and capable of being supplied as **one (COMPLETELY INTEGRATED) or for versatility; two or three modules as specified herein.**

The ability to separate the compressor module from the charge station is for operator safety.

Many compressors have such a loud decibel rating as to cause hearing impairment and to require the use of ear protection devices.

## **WARRANTY**

The equipment supplied shall be guaranteed to be new, of current design, and free of all defects in material and workmanship for a period of **one year**, based on prescribed service and maintenance.

### ***10 HP***

*6000 PSI Stationary Breathing Air Cylinder Charge Station*

### **10HP AIR COMPRESSOR**

1. Maximum pressure continuous duty is 6000 PSI
2. Charge rate (14cfm)
3. RPM 1750
4. Compressor shall be a four stage.

5. Compressor shall be lubricated by differential pressure.
6. Compressor shall be air-cooled.
7. Fully enclosed all metal fan-blade guard.
8. Flywheel shall be precision-balanced and fan-bladed for excellent cooling capacity.
9. Electric motor shall be 10HP, 230 volt, 60HZ, three phase.
10. Compressor shall be constructed in a V design for low vibration and balanced rod load.
11. Ductile iron connecting rods for high strength.
12. Compressor crankcase shall be constructed from top grade Aluminum Alloy eliminating excessive weight.
13. Two crankcase covers for quick and easy main bearing replacement and access to crankshaft and connecting rods.
14. Crankshaft shall be ductile iron and counterbalanced with large diameter throw for low bearing loads, high strength and long life.
15. Compressor shall be constructed with cast iron cylinders.
16. Cylinders shall have finned aluminum heads for superior heat dissipation.
17. Compressor shall have piston rings on all pistons.
18. Valve housings shall be nickel-plated for corrosion resistance.
19. Compressor shall have pressure gauges, intercoolers, relief valves, and condensate traps after each stage of compression.
20. Compressor and electric motor shall be mounted with an automatic "V" belt adjusting system.
21. Stainless steel, disc-in plate valves for long wear, excellent heat resistance and dissipation.

## **PURIFICATION SYSTEM**

1. The purification system shall consist of a mechanical oil/moisture separator and one and 2 chemical purification chambers.

The chambers shall be designed to conform to the ASME code for Unfired Pressure Vessels.

2. Purification chambers shall be constructed in aluminum alloy 6351 as its anti-corrosive properties exceed all other chamber materials.

3. Purification system shall process a minimum of 37,000 SCF of air per cartridge set.

Purified air shall be measured by the actual weight of Molecular Sieve.

**Electronic dewpoint (DP) detection shall not be used as a means to claim extended chemical cartridge life.**

4. Each purification chamber shall have "Safety Burst Discs" integrated into its base.
5. CO and dewpoint sensors shall not be installed in the purification chamber. Sensors shall be installed downstream of all chambers so the sampled air is representative of that delivered to the B.A. cylinders.

The purification system shall have the following minimum ratings:

1. 6000 PSI working pressure.
2. 4 to 1 safety factor.
3. 5 to 80 SCF minimum flow capacity.
4. 37,000 standard cubic feet of air purified per chemical cartridge set.

## **CONTROLS AND MONITORS**

The system shall have the following as a minimum:

### **FUNCTIONS / PARAMETERS MONITORED AND CONTROLLED**

#### **1. COMPRESSOR ASSEMBLY**

- A. Compressor start/stop (stop - advise normal and alarm abnormal condition)
- B. Discharge air pressure (stop - advise normal condition)
- C. Auto condensate drain control (cycle drain function, advise normal condition)
- D. Cool Down Cycle \*\* (on shutdown, advise normal condition)
- E. Oil level and/or pressure (stop, alarm and advise abnormal condition)
- F. Give automatic service status for Air Sample, CO Monitor calibration and Purifier elements.
- G. Multi-level password feature for security.
- H. Downloadable history for diagnostic and performance evaluation.

**\*\*COOL DOWN SYSTEM** - The system shall have the capability of dumping all mechanical moisture traps every fifteen (15) minutes during compressor operation.

Prior to shutdown, manually or automatically, it shall open and unload all moisture drain valves.

It shall run for two to five minutes in order to cool and dry completely purge the system of all accumulated water and oil vapor.

#### **2. PURIFICATION SYSTEM**

- A. Dewpoint monitoring/control (Constant monitoring) (stop, alarm and advise abnormal condition)
- B. Carbon monoxide monitoring/control (Constant monitoring) (stop, alarm and advise abnormal

condition)

C. Auto condensate drain control (advise status normal condition)

D. "Purge" control, dumps the air exiting the purifier in order to clear up temporary alarm conditions (advise status normal condition)

### **3. HOUSEKEEPING**

A. Total time on compressor assembly (advise time on command)

B. Time since compressor service (re-settable, advise time on command)

C. Time since purification cartridge change (re-settable, advise time on command)

D. Time on DP monitor cell (re-settable, advise time on command)

E. Time on CO monitor cell (re-settable, advise time on command)

F. Automatic calibration of DP and CO monitors (advise procedure on command)

### **4. ALARMS (AUDIO/VISUAL)**

A. High discharge air temperature- with automatic compressor "STOP", The upper limit is factory set.

B. High discharge air carbon monoxide- with automatic compressor "STOP"

C. High discharge air moisture (dewpoint)- with a "WARN" to advise a pending filter (purification cartridge) change; an "ALARM" with automatic compressor "STOP"

D. Low oil level and/or pressure- with automatic compressor "STOP"

### **5. SPECIAL FEATURES AND CONTROLS**

A. Prolonged run time control. Will stop the compressor assembly when pre-determined continuous run time has been exceeded. An audio/visual alarm and word advise is presented on the abnormal condition. "RESET" is required

B. Time delay for false alarm recognition. Pre programmed to prevent false alarms from stopping the compressor or initial system setup and on purifier cartridge change.

C. Demand Control (In Automatic mode)

D. "Emergency Stop" control mounted on the main control panel.

E. Back light control switch on panel.

\*\*\*ability through a 3 – 5' pigtail extension off of the system to hook up to and fill a MOBILE CASCADE SYSTEM THE WEAKLEY COUNTY EMA has in an enclosed trailer that has a 10' hose adapter coming off of its cascade system for filling\*\*\*\*\*

### **6. DISPLAY**

A. Final Pressure "Storage Full" (up to 6000 PSI)

- B. Discharge Air Temp. Up to 800F
- C. Oil Level/Pressure “GO-NO-GO” alarm
- D. Dew Point Level Up to 30F, down to minus 100F
- E. Carbon Monoxide Level 0 to 200 PPM
- F. Timing Functions Hours and Minutes, calendar date

**\*\* DEMAND CONTROL** - The compressor will automatically respond to air “demand”, keeping the air receivers at 6000 PSI. When operated electrically, it will start and stop as required. When operated by an engine, the compressor will “load” and “unload”, and disengages from the engine as required to maintain pressure. When disengaged, the engine will automatically go idle and wait for the next “load” command.

## **AUTOMATIC SEQUENCE CONTROL**

Automatic sequence control valves shall be factory installed to manage the direction of airflow.

When the storage and BAC pressure gauges equalize, the system shall prioritize the BACs.

When the BACs are fully charged, the airflow is automatically redirected so as to fill the storage air receivers.

## **DELIVERY, INSTALLATION AND TRAINING**

The complete system shall be assembled and tested as a complete system at the factory prior to shipment.

A test certificate shall be part of the Operation and Maintenance manuals (1 set) that shall be shipped with the system.

The system shall be delivered FCA Seller’s Premise.

The system shall be set up, installed, and checked out at the user’s destination by the distributor. The user shall receive training on the operation and maintenance of the system as required provided by the vendor on site at Martin Fire Department Station 1.

## **ANNUAL SERVICE AGREEMENT**

An annual maintenance agreement shall be scheduled and carried out by the vendor for a period of **(3) three years** from date of installation of the system and price shall be included into the proposed bid.

**Any exceptions to this RFP need to be addressed by writing “MEET” or “DO NOT MEET” next to each line in the Bid Specifications.**

**For informational purposes the Martin Fire Department has 3 phase electrical power at the installation site**

**Any addendums to the bid specifications will be posted on the City of Martin website at [www.cityofmartin.net](http://www.cityofmartin.net)**