

Instrument Air Duplex Single Point Connection (SPC) Base Mount Systems

(7½ - 10 HP)

SPECIFICATION

SPC (Single Point Connection) System Design

The instrument air system shall be of a single point connection base mounted design consisting of two compressor modules with dryers and a single control module with control panel, air receiver, filtration system and oil/water condensate separator. Each module has a maximum base width of 34.50" (88 cm) and be fully compliant with the latest edition of NFPA 99. The modules shall be assembled as one unit with single point connections for air discharge, electrical and condensate drain.

Compressor/Dryer Module (Compressor, Drive, Motor, Piping, Dryer)

The compressor shall be a high pressure "oil-lubricated" continuous duty rated type. The design shall be two staged, air-cooled, reciprocating type with corrosion resistant reed type valves with stainless steel reeds. Both oil scrapper ring and piston rings shall be made from long lasting special cast iron and designed for continuous duty operation. The crankshaft shall be constructed of forged steel and fully supported on both ends by heavy duty ball bearings and seals. The crankcase shall be constructed of grey cast iron. Maximum heat dissipation shall be achieved through cast iron cylinders with external cooling vanes. Cylinder sleeves are not required. Both low and high pressure pistons are made from cast aluminum with chrome-moly piston pins. Second stage cylinder head shall be equipped with a wired shutdown switch for high discharge air temperature. The connecting rod shall be of a one-piece design. The compressor shall be v-belt driven through a combination flywheel/sheave and steel motor sheave with tapered bushing and protected by an OSHA approved totally enclosed belt guard. A sliding motor mounting base that is fully adjustable through twin adjusting screws shall achieve belt tensioning. The motor shall be a NEMA rated, open drip proof, 1800 RPM, with 1.15 service factor suitable for 208 or 230/460V electrical service. Each compressor shall have its own inlet air filter mounted on the first stage compressor heads. Discharge air from the first stage compressor cylinder passes through an air-cooled intercooler prior to entering the second stage. The second stage discharge air then passes through an air-cooled aftercooler designed for a maximum approach temperature of 12°F complete with moisture separator and zero loss automatic drain valve prior to entering the dryer. The compressor discharge line shall include a flex connector, safety relief valve, isolation valve and check valve. The discharge air piping shall be of ASTM B-819 copper tubing, brass and/or stainless steel. The discharge flex connector shall be braided 304 stainless steel, brass or bronze. Each compressor has its own dedicated dryer. Each dryer is individually sized for peak calculated demand and capable of producing a -40°F (-40°C) pressure dew point. Dryer purge only occurs when its respective compressor is running. Upstream of the dryer will be a separator with a zero loss drain valve followed by a 0.01 micron coalescing filter. Both filters shall have element change indicators.

Isolation System

Each compressor and motor assembly shall be fully isolated from the main compressor module base by means of a four point, heavy duty, spring isolation system for a minimum of 95% isolation efficiency. Where required by local or state regulation, optional seismically restrained isolators can be provided at an additional cost.

Control Module with Air Receiver/Filter/Regulator System

The control module shall include a NEMA 12, U.L. labeled control system, duplexed final line filters, regulators, oil indicators and a condensate oil/water separator and dew point monitor and an air sampling port. All of the above shall be factory piped and wired in accordance with NFPA 99 and include valving to allow complete air receiver bypass. The vertical air receiver shall be ASME Coded, National Board Certified, corrosion resistant, rated for a minimum 250 psig design pressure and includes a liquid level gauge glass, safety relief valve, manual drain valve and automatic solenoid drain valve.

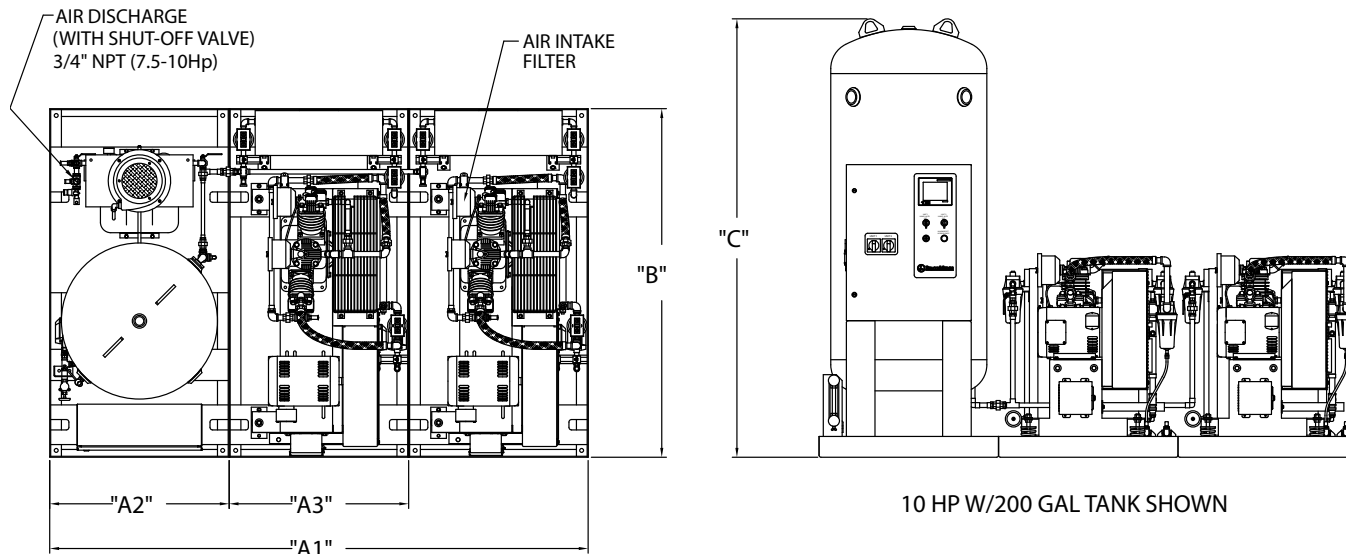
Control System

The control system shall have an HMI touch screen control, automatic lead/lag sequencing with circuit breaker disconnects for each motor with external operators, full voltage motor starters, overload protection, 24V control circuit and hand-off-auto selector switch for each compressor. Automatic alternation of both compressors based on first-on/first-off principle with provisions for simultaneous operation if required. Automatic activation of reserve unit, if required, will activate an audible alarm as well as a visual alarm on the HMI. The HMI displays service due, run hours for each compressor, system status, operating pressure, dew point and high discharge air temperature shutdown. A complete alarm and service history is available on the HMI.

Dew Point Transmitter

The control module shall incorporate a dew point transmitter that is mounted, pre-piped, wired to the control panel and displayed on the HMI touch screen. The transmitter probe shall be 316L SS with sintered stainless steel filter and thin film polymer sensor. The system accuracy shall be ± 2°C. Dew point alarm shall be factory set at -22°F (-30°C) per NFPA 99 with remote alarm contacts in the control panel.

Standard Configuration



| MODEL NO. | HP | RECEIVER (GAL.) | A1 | A2 | A3 | B | C | WEIGHT |
|--------------|-----|-----------------|-------|------|------|------|------|--------|
| HPA-7D-D200 | 7.5 | 200 | 103.5 | 34.5 | 34.5 | 67.0 | 84.5 | 2701 |
| HPA-10D-D200 | 10 | 200 | | | | | | 2901 |

NOTE: UNIT SHIPPED ASSEMBLED AS SHOWN. BASEFRAMES CAN BE UNBOLTED FOR PASSAGE THROUGH A STANDARD DOORWAY.
(Ref. DIA 24-856-SSB)

| Instrument Air System Specifications ¹ | | | | | | | | |
|---|-----|------------------------------|----------------------------|---------------------------------|--------------------------|------------|------|------|
| Complete System Model No. | HP | System Capacity ² | System ³ BTU/HR | Receiver ⁴ (gallons) | Noise ⁵ Level | System FLA | | |
| | | 200 psig | | | | 208V | 230V | 460V |
| HPA-7D-D200 | 7.5 | 16.5 | 17,062 | 200* | 76 | 46 | 41 | 20 |
| HPA-10D-D200 | 8.6 | 24 | 23,014 | 200* | 79 | 60 | 52 | 26 |

- Notes:**
1. Normal operating conditions at a maximum ambient of 105°F. Consult factory for higher ambient conditions.
 2. All capacities are shown as NFPA system capacities (reserve compressor on standby) and are shown in Inlet Cubic Feet per Minute (ICFM). System losses subtracted from pump capacity.
 3. All system BTU/HR is shown with reserve compressor on standby.
 4. * Indicates standard receiver
 5. All noise levels are shown in dB(A) and reflect one pump running.