



MEDICAL AIR SYSTEM

Oil-less Scroll Air Compressor

Rev.5

General Description

NOVAIR USA's industry leading medical air systems are 100% oil-less, designed and manufactured to meet all NFPA 99 standard last edition. The system shall include multiple oil-less scroll air compressors, equipped with intake filters with threaded connections and high temperature protection connected to the electrical control system, electric motors for continuous use, air cooled after-cooler with moisture separator and automatic drain for each compressor, bronze check valves and A.S.M.E. stamp air receiver with two-component epoxy internal coating, sight glass, safety valve, automatic and manual drain valve. The system shall include a tank bypass with pipes and ball valves in bronze or stainless steel. Dual air treatment modules each integrated by pre-filter, air dryer, post-filter and pressure regulator, each module can be operated independently through its valves. Dew point and carbon monoxide monitor with local alarms, dry-contacts for remote alarms and connection for air sampling. UL certified electrical control panel mounted and wired, controlled by PLC. The entire system is 100% tested before leaving the factory.

According to the NFPA 99 standard, it is required to keep one module in reserve, therefore, the capacity of the system is equivalent to the sum of the flow of the total number of modules, minus 1.

Oil-Less scroll compressor, electric motor & air receiver

Oil-less rotary scroll air compressor single stage air cooled rated for 100% continuous duty, equipped with high temperature shutdown protection, the rotary design consisting of one fixed and one orbiting scroll sealed with PTFE tip seals between the scroll for 10,000 hours operations, and shall not require any inlet or exhaust valves. The scroll case shall be constructed of diecast aluminum. Maximum heat dissipation shall be achieved through an integral cooling fan and air ducting. The drive bearing shall be grease filled and lip sealed with a maintenance interval of not less than 10,000 hours for extended compressor life. The compressors count with intake filters (adequate for hospital installations) with threaded connections for remote piping, driven by electric motor with v-belt / pulley transmission, protected by a totally enclosed OSHA belt guard. Each compressor shall be equipped with an integral air-cooled aftercooler designed for a maximum approach temperature of 15° F complete with moisture trap and automatic solenoid drain valve, the discharge line shall include a flex connector, safety relief valve, isolation valve and check valve.

High efficiency NEMA rated motor, open drip proof (ODP) enclosure (or TEFC optional) @ 1800 r.p.m., 1.15 service factor, with motor slide base for easy belts tensioning, suitable for electrical service of 208-230/380*/400*/460V, 3 ph, 60 Hz & 190/380 V, 3 ph, 50 Hz. The compressor-motor assembly is mounted on a robust base with independent anti-vibration system. (*optional voltage)

Air receiver A.S.M.E. code stamp, rated for 200 PSIG design pressure with two-component epoxy internal coating for corrosion resistance, equipped with gauge, safety valve, sight glass liquid level, manual and automatic drain. The receiver count with a 3-valve by-pass with all pipes and fittings in bronze or stainless steel as required per NFPA.

Anti-vibration design with alignment and independent tension

Each compressor-motor assembly comes with a stand-alone system for pulleys alignment, belts tensioning and vibration isolation, allowing easy maintenance, & achieve low noise level and less vibration. This design allows to extend system life and minimize failures due to vibrations or seismic situations.

Sequential Operation

The 15 and 20 HP NOVAIR medical air systems are designed with a multi-motor sequential operation system, which adapts to air demand in a smart way, allowing for considerable energy saving. The centralized control panel will turn on only the necessary motors to satisfy the air demand. The multi-motor design allows bigger back-up than required by the NFPA, due each compressor-motor assembly can operate independently.

Dryers, Filters, Carbon monoxide & Dew point monitoring

The air treatment stage consists in a dual parallel line each one integrated by 0.01 micron coalescing pre-filter with element change indicator and automatic drain, twin-tower (PSA) desiccant air dryer, 1-micron particulate post-filter with element change indicator, active carbon filter (optional), pressure regulator setting @ 55 psig (field adjustable). Each pre-filter, dryer, post-filter, and regulator set is piping with an in and out manual ball valves to enable service without disrupting air flow to the facility. After the air treatment stage, the system count with CO (carbon monoxide) monitor with high alarm set at 10 ppm, dew point sensor with high alarm set at 35°F (2°C) and auto calibration feature, safety relief valve, sample valve to measure and validate the air quality, and the source valve to the application. High CO and high dew point conditions are indicated with visual and audible alarms in the control panel.

AIR
COMPRESSORS



SCROLL

PRODUCT SPECIFICATION



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Energy saving by purge air control

The design of the NOVAIR air systems integrates, in the centralized control panel, the operation of the dew point sensor and the dryers purge control, allowing energy saving by eliminating the purge air when the ideal dew point is reached. Once this value has been exceeded, the purge air is activated again to regenerate the desiccant media.

Control Panel UL

The system includes a UL listed centralized control panel wiring and tested in a NEMA 4 enclosure, through the door disconnect switch, full voltage starter with motor circuit protector and contactor for each motor. Dual control transformer (@ 120 Vac and 24 Vac) Programming Logic Controller (PLC) with Electronic HMI 3.6" resolution 240 x 80 pixel or full color 7" Touch screen HMI resolution 800 x 400 pixel (optional) for system control. Operation mode Manual-Off-Auto and rotation test function. Automatic alternation based on first-on/first-off principle, provision for simultaneous operation or reserve back-up pump if its required. Hour meters run indicator and failure indicator (overload or high temperature) for each module. Back-up transformer failure indicator. Pressure, CO and dew point value with audible and visual alarm with dry contact for remote alarms.

- Control panel (NE) *see picture 1*

The control panel includes a 3.6" electronic screen (resolution 240 x 80) with keyboard for system control. It shows the hour meters run indicator and failure indicator, pressure, CO and dew point values. Back-up pressure switch for eventual pressure sensor failure.

- Control panel (NT) (Optional) *see picture 2*

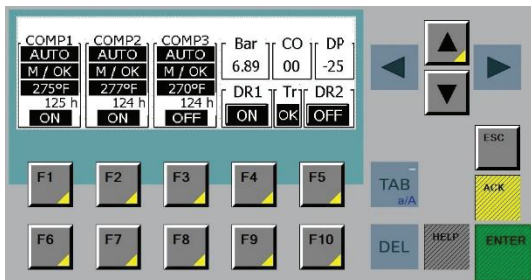
The control panel includes a full color 7" touch screen (resolution 800 x 400) for system control. It shows the hour meters run indicator and failure indicator, pressure, CO and dew point values with graphics trends and high alarms indicator. Back-up pressure switch for eventual pressure sensor failure. Datalogger directs to USB memory to file parameters like pressure, CO and dew point trends.

- Control panel (NTW) (Optional) *see picture 2*

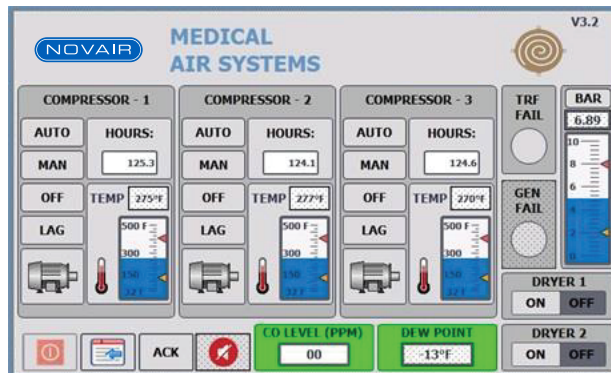
It has all the components of control panel (NT) and additionally has Web communication to allow remote internet connectivity to monitoring the system on web-site platform with protected and personalized user and password, accessible from any computer or mobile device for full monitoring.

Types of control interfaces

Picture 1. Control Panel NE



Picture 2. Control Panel NT



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