SOUTH-TEK SYSTEMS – FPS NITROGEN GENERATION

CORROSION INHIBITING SYSTEM

DESIGNED FOR DRY AND PREACTION

FIRE PROTECTION SYSTEMS (FPS)

1. DESCRIPTION OF WORK
   1. The Fire Sprinkler Contractor shall provide all required equipment, materials, labor and services needed to install a complete and operational South-Tek Systems *Nitrogen Generation Corrosion Inhibiting System.* This system is designed to service all Dry and/or Pre-action FPS or as directed per the Design Engineer. Installation guidelines by the manufacturer shall be followed.
2. NITROGEN GENERATION SYSTEM
   1. The Fire Sprinkler Contractor shall provide and install a South-Tek Systems Nitrogen Generation System.
   2. A single South-Tek Systems Nitrogen Generation System shall provide Supervisory Pressure between 0-60 PSI for up to (22,500) total gallons of sprinkler pipe capacity within all Zones (Zone = sprinkler piping connected to a single Riser). For a building containing more than (22,500) total gallons of capacity, consult South-Tek Systems to verify the correct system for the project.
   3. The Nitrogen Generation System shall have either an integrated, oil-less air compressor located within the Nitrogen Generation System’s cabinet, or a separate oil-bathed air compressor package to be mounted on vibration isolating mounts
   4. The Nitrogen Generation System shall be wall or skid mounted.
      1. Wall Mounted Models: FPS-500 & FPS-900
      2. Skid Mounted Models: FPS-1650, FPS-3250, FPS-5000, FPS-10000, FPS-16500 & FPS-22500
      3. Skid Mounted Nitrogen Generators shall be provided with SMART-Trak technology programmed into the onboard Programmable Logic Controller (PLC), which shall be capable of being monitored remotely or on the Nitrogen Generation System’s Human Machine Interface (HMI).
         1. SMART-Trak shall monitor leak rate, hours of operation of the nitrogen generator, time in air bypass mode, generator pressure, current status of nitrogen generator, maintenance schedules, and alarms.
         2. SMART-Trak to provide service reminders, set to the manufacturer’s recommended maintenance schedules.
   5. The Nitrogen Generation System shall provide a minimum of 98% Nitrogen purity to the FPS.
   6. Each Nitrogen Generation System provided must be *FM 1035 Approved & UL 508A - Industrial Control Panel Listed.*
   7. The Nitrogen Generation System shall be sized to maintain NFPA 25 acceptable leak rate (3 PSI loss over 2 Hours).
3. FEED AIR (COMPRESSOR)
   1. Each South-Tek Systems Nitrogen Generation System shall be provided with an air compressor package capable of filling the largest Zone of the FPS to pressure within 30 minutes per NFPA 13 Requirements.
   2. Electrical shall be provided for the air compressor per the manufacturer’s specifications (i.e. wire size, voltage and proper breaker).
4. BMS ALARM INTEGRATION
   1. The Nitrogen Generation System shall be provided with the integrated BlastOff™ Series alarms (as directed within Sections 5.1.1 and 5.1.2). These alarms shall be programmed into the PLC and connected to the Building Monitoring System (BMS). The connection shall contain an isolated dry contact rated up to 240VAC 16 amps (NC & NO Contacts available). The Fire Sprinkler Contractor shall run a DC or AC signal line in code approved electrical conduit from the Nitrogen Generation System to the supervisory circuit on the Building Monitoring System.
   2. All Wall Mount & Skid Mount Nitrogen Generation Systems shall include both the:
      1. The BlastOff™ I - *Leak Detection System* shall alarm should significant leaks develop within the FPS piping, prior to them becoming catastrophic and causing supervisory pressure to fall below specification. These leaks shall be addressed immediately by the Fire Sprinkler Contractor in order to minimize unnecessary runtime on the Nitrogen Generation System.
      2. The BlastOff™ II - *Air Bypass Alarm* shall alarm should the Nitrogen Generation System be bypassed by the air compressor.
   3. All Skid Mount Nitrogen Generation Systems available with optional alarms:
      1. The BlastOff™ III- *Early Warning System* to alarm when there is a malfunction with the air compressor, Nitrogen Generation System, or significant leak somewhere within the piping network. Provided with an additional (1) year manufacturer’s warranty on the Nitrogen Generation System.
      2. The BlastOff™ IV – *Onboard Purity Alarm* monitors the purity of the nitrogen that is being produced at the Nitrogen Generation System. Alarms should the Nitrogen Purity produced by the Nitrogen Generator drop below 98%. Purity data shall be displayed and graphically trended allowing its history to be viewed remotely or via the HMI.
5. AUTOPURGE SYSTEM
   1. A single South-Tek Systems - *AutoPurge System®* shall be installed per zone, within the sprinkler pipe network, at an area where water/moisture will not typically collect.
   2. Each *AutoPurge System®* is to be provided with a needle valve (i.e. flow control located on the front of the device) which allows correct purge rate per the manufacturer’s specifications to achieve 98% Nitrogen Purity within two weeks (14 days).
   3. The purge device shall not require any electrical connection, AC or DC.
   4. The *AutoPurge System®* shall have a connection allowing the Quick-Check® - *Portable Purity Sensor* orQuick-Check® *- Purity Manifold* to connect for verifying Nitrogen purity within the Zone.
6. SUPERVISORY GAS MONITORING – NITROGEN PURITY SENSORS
   1. Furnish either (1) Quick-Check*®* - *Portable Hand Held Nitrogen Purity Sensor* per project and/or (1) Quick-Check*®* - *Purity Manifold* per project.
      1. The Quick-Check*®* - *Portable Hand Held Nitrogen Purity Sensor* is to be manually connected to the outlet of the *AutoPurge System®* during periodic inspections in order to obtain a quick purity reading of the Nitrogen content within any particular Zone.
      2. Quick-Check*®* *- Purity Manifold* shall be provided in either a 1, 6, 10 or 20 zone model, capable of monitoring 1, 6, 10 or 20 individual zones.
      3. Quick-Check*®* *- Purity Manifold* shall be programmed by the manufacturer to monitor the Nitrogen purity within each zone, daily. If the Nitrogen content within the zones meets the 98% purity spec, the *AutoPurge System/s*will remain closed. If the Nitrogen purity spec is not met, the *AutoPurge System/s* shall remain in the “OPEN” position until the Nitrogen purity spec is met.
         1. ¼” polyethylene plenum rated tubing shall connect each *AutoPurge System®* to the Quick-Check*®* – *Purity Manifold* (tubing to be provided by the manufacturer).
7. AIR MAINTENANCE DEVICE (SUPPLIED BY THE INSTALLING CONTRACTOR)
   1. Recommended to install an Air Maintenance Device for each dry/pre-action fire sprinkler system.
   2. The Air Maintenance Device shall be equipped with an adjustable pressure regulator (sized to meet Supervisory Pressure settings) for setting the maximum pressure on the FPS.
   3. The Air Maintenance Device shall be the equivalent of an AMD-1 and not contain a pressure switch.
   4. The Air Maintenance Device shall be installed per the manufacturer’s specifications.
8. SYSTEM STARTUP AND INSTALLATION TRAINING
   1. If requested by the Design Engineer, South-Tek Systems shall provide on-site guidance and training following the installation of the Nitrogen Generation Corrosion Inhibiting System.
   2. Contact South-Tek Systems; 2940 Orville Wright Way, Wilmington, NC, 28405

Phone: 888.526.6284 or [info@southteksystems.com](mailto:info@southteksystems.com) for further information.