A-T Controls, Inc.
9955 International Blvd. • Cincinnati, Ohio 45246
Phone: 513.247.5465 Fax: 513.247.5462
www.atcontrols.com

Engineer: CMB **No.:** DI00014
Date Created: 06/01/2015
Date Modified: 03/29/2023

Natural Gas Service for Pneumatic Actuators and Valves

Natural Gas is a colorless, odorless, and non-toxic gas that primarily consists of Methane and other heavier hydrocarbons like ethane, propane, etc. Other components of Natural Gas can include Nitrogen, Carbon Dioxide, Water, and Hydrogen Sulfide. Natural gas burns readily with air when between its lower flammability limit in air (about 4% concentration in air) and upper flammability limit in air (about 15% concentration in air). When Natural Gas contains a set concentration of Hydrogen Sulfide, it is commonly referred to as "Sour" Natural Gas, while if it is below that set concentration it is commonly referred to as "Sweet" Natural Gas. This concentration varies between states/countries. Hydrogen Sulfide in low concentrations can attack soft materials such as Nitrile Buna Rubber (NBR). Knowing these facts, careful selection of materials of construction for pneumatic actuators is imperative for a safe, stable Natural Gas system.

Specifications for Pneumatic Actuators for Natural Gas

The corrosive characteristics of Hydrogen Sulfide make selection of materials of construction for Natural Gas service vital. A-T Controls offers pneumatic actuators that can operate in systems that contain Natural Gas with Hydrogen Sulfide. Because of the corrosivity of Hydrogen Sulfide and its attack on soft materials like NBR/Nylon and high Carbon material such as springs**, A-T Controls Spring Return actuators in Natural Gas systems with Hydrogen Sulfide present in any concentration must contain Viton® seals. Springs must be isolated from Hydrogen Sulfide to ensure chemical attack on incompatible materials is avoided.** Please consult A-T Controls for material selection for your application. These parameters are guidelines, and the end user is responsible for materials of construction, final preparation of actuators for service, and lubricants being compatible for their Natural Gas application.

Actuator Packages

3R Series Rack & Pinion- Double Acting and Spring Return, dual travel stops, ISO 5211 mounting dimensions, corrosion resistant hard anodized finish, NAMUR accessory mounting, maximum working pressure 150 psig.
Literature Download & Web Content

Stainless Steel Rack and Pinion- 316 SST body, pinion and pistons. Double Acting and Spring Return, ISO 5211 mounting dimensions, NAMUR accessory mounting, maximum working pressure 150 psig.
Literature Download & Web Content

180° Pneumatic Rack and Pinion- Hard anodized Aluminum housings and die cast Aluminum pistons, torques up to 7700 in*lbs, ISO 5211 mounting dimensions, NAMUR accessory mounting.
Literature Download & Web Content

THD Series Heavy Duty- Scotch yoke design, Double Acting and Spring Return, Symmetric and Canted Yoke Design, Torques up to 1,600,000 in*lbs.
Literature Download & Web Content

SY Series- Scotch yoke design, Double Acting and Spring Return, Torques up to 12,370 in*lbs.
Literature Download & Web Content

A-T Controls, Inc.
9955 International Blvd. • Cincinnati, Ohio 45246
Phone: 513.247.5465 Fax: 513.247.5462
www.atcontrols.com

Engineer: CMB **No.:** DI00014
Date Created: 06/01/2015
Date Modified: 03/29/2023

Specifications for Floating Ball Valves in Natural Gas Systems

The corrosive characteristics of Hydrogen Sulfide also make careful selection of materials of construction for valves in Natural Gas Service vital. Applications with unfiltered natural gas require 1.50 times the rated torque of the valve to account for debris. This debris can also damage soft materials in the valve.

NACE

NACE International (formerly the National Association of Corrosion Engineers) provides Material Requirement documents that help prepare valves for environments that contain Hydrogen Sulfide. These include NACE MR0175 (Materials for use in H2S containing environments in oil and gas production) and NACE MR0103 (Materials Resistant to Sulfide Stress Cracking in Corrosive Petroleum Refining Environments). These Material Requirements specify different parameters such as hardness of the material and bolting required for sour service. **A-T Controls offers valves that meet NACE MR0175/MR0103 with their standard configurations. Other valves can be ordered to meet NACE requirements.**

Standard Materials

Please consult A-T Controls for material selection for your applications. These parameters are guidelines, and customers are responsible for materials of construction and lubricants being compatible with their natural gas application.

Auxiliary Stem Seal: PTFE/RTFE/TFM™-1600/50-50 STFE, Viton®, Graphite
Body: 316 SST, Carbon Steel
Seats: PTFE, TFM™-1600, RTFE, 50/50 STFE, others
Trim: 316 SST, 304 SST, Carbon Steel (see material lists for NACE bolting)

Valve Packages *(Others Available)*

Series FD9- 150#, 300#, 600# Direct Mount Split Body Flanged Ball Valve, Firesafe, standard NACE MR0175 (FD9C Series meets MR0103), 316SST or WCB, multiple sizes available.

Literature Downloads:
FD9-F1: Literature Download & Web Content
FD9-F3: Literature Download & Web Content
FD9-F6: Literature Download & Web Content

Series F88/F83/F8R- Full Port or Regular Port, 2000/1500/1000 WOG (by size), Firesafe, standard NACE MR0175, 316SST or WCB, multiple sizes available.

Literature Downloads:
F88: Literature Download & Web Content
F83: Literature Download & Web Content
F8R: Literature Download & Web Content