



# A-T Controls, Inc.

9955 International Blvd. • Cincinnati, Ohio 45246  
Phone: 513.247.5465 Fax: 513.247.5462  
www.atcontrols.com

**Engineer:** CMB **No.:** DI00006  
**Date Created:** 12/17/2014  
**Date Modified:** 07/01/2021

## Ammonia Service

Ammonia is a colorless gas that has a bevy of uses in industry such as a compound used for the production of fertilizers and as a refrigerant. There are a few states and compounds of Ammonia that are common including liquid Ammonia, Anhydrous Ammonia, and Ammonium Hydroxide. Although it has many uses, Ammonia is intrinsically dangerous because it is flammable and can cause severe irritation if the user is exposed. Careful selection of materials of construction is required to sustain a stable Ammonia system.

### Vented Ball

Ammonia has a high coefficient of thermal expansion. A pressure vs. temperature graph for Anhydrous Ammonia is shown on the next page. A-T Controls provides a means of relieving this pressure by venting the ball in the upstream direction. This limits the valve to one direction flow and an arrow on the valve shows which direction the valve should be installed. **A vented, upstream ball is required for floating ball valves in liquid Ammonia service.**

### Cleaning and Lubrication

The reactivity of Ammonia makes removal of materials that can react with Ammonia such as oils, greases, combustible materials, and others imperative. Compatible greases are required for the construction of the valves. **A-T Controls thoroughly cleans all valve parts and lubricates the O-ring with a compatible lubricant. The valves are vacuum packed with desiccant and marked as cleaned for Ammonia service.**

### Standard Material

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

**Auxiliary Stem Seal:** Graphite, PTFE

**Body:** Carbon Steel (acceptable with most anhydrous Ammonia applications), ASTM A351 Grade CF8M

**Seats:** EPDM, PTFE, 50/50 STFE, RTFE, TFM™-1600 (recommended for cold temperature applications)

**Trim:** 316 SS (standard), 304 SS

**Note: Viton® O-rings should be changed to EPDM**

### Valve Packages (Others available)

**Series 77-** Sizes 1/2"-4", Cavity Filled and Non-Cavity Filled, ISO 5211 Mounting Pad, 316L Body and Stem, Full Port, Sanitary Clamp Ends or Tube OD Ends

Literature Download:

[Literature Download & Web Content](#)

**Series FD9-** 150#, 300#, 600# Direct Mount Split Body Flanged Ball Valve, Firesafe, 316SST or WCB, multiple sizes available

Literature Downloads:

**FD9 150#:** [FD9 150#](#)

**FD9 300#:** [FD9 300#](#)

**FD9 600#:** [FD9 600#](#)



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**Series F8R/F88-** Sizes ¼" - 4", Full Port and Regular Port, 316 SST or Carbon Steel Body, Threaded, Socket Weld, or Butt Weld

Literature Downloads & Web Content:

[F88](#)

[F83 & F8R](#)

**Series AS-** Sizes 2" – 24" (2" – 12" in stock), 150# Flange or Wafer Style PFA lined butterfly valve, ISO 5211 Actuator Mounting Pad, -20°F – 355°F temperature rating, 150 psig pressure rating.

Literature Download: [Literature Download & Web Content](#)

