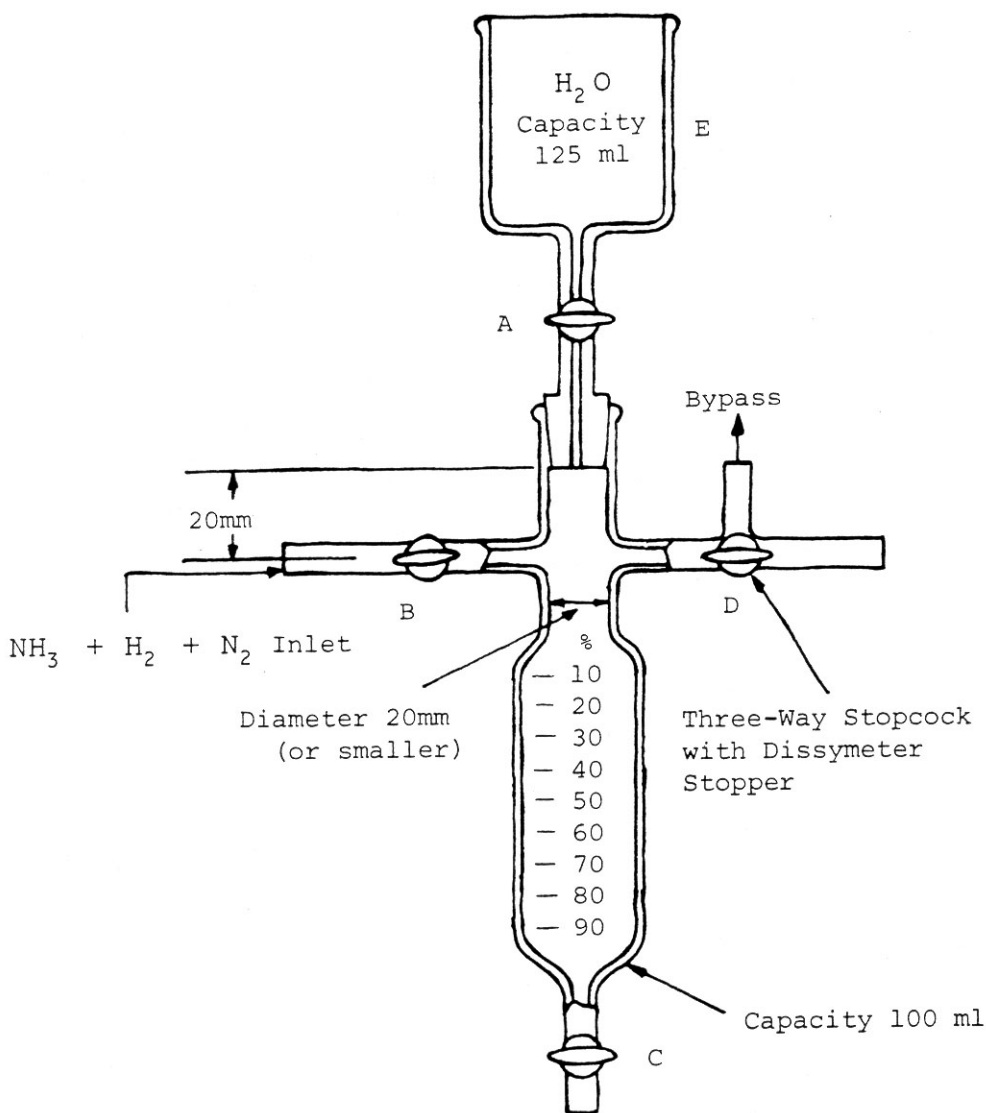


## AMMONIA DISSOCIATION BURETTE INSTRUCTIONS

The purpose of a dissociation burette is to determine the percentage of ammonia dissociation during the nitriding operation. The exit gas from the nitriding container is first passed through an oil bubble bottle to indicate the back pressure. This back pressure should be approximately 3 to 4 inches of oil. The exit gas leaving the container consists of nitrogen, hydrogen and undissociated ammonia. Ammonia gas is very soluble in water, but nitrogen and hydrogen are insoluble. This difference in solubility is utilized to determine the extent of ammonia dissociation during the nitriding operation.



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## **PROCEDURE**

1. Starting position - stopcocks A, B and D are closed. Stopcock C is open.
2. Open stopcock B to admit gas from the nitriding chamber into the graduated chamber.
3. After the air has been expelled from the graduated chamber, stopcock C is closed and stopcock D is turned to bypass the gas mixture.
4. Reservoir E is filled with water, stopcocks B and D are closed, and stopcock A is opened to admit water into the graduated chamber.

The water immediately absorbs the ammonia, leaving the insoluble nitrogen and hydrogen in the atmosphere above the liquid in the burette.

Since this apparatus is calibrated in percentage of ammonia dissociation, readings are taken directly from the burette. At relatively low dissociation percentages, dissociation is controlled by adjusting the ammonia flow into the nitriding furnace.

At higher dissociation percentages, dissociation is controlled by adjusting both the ammonia and dissociated ammonia flow into the nitriding furnace. A common ratio is one part of ammonia to two or three parts of dissociated ammonia.

The dissociation burette can be purchased from:

Fisher Scientific Company  
711 Forbes Avenue  
Pittsburgh, PA 15219

412-562-8300

The correct catalog number for ordering is 03-828. The cost in January 1991 was \$210.00

Certain precautions must be observed in handling mixtures of ammonia, nitrogen and hydrogen gases to avoid explosions. A positive pressure should be maintained at all times (at least one to two inches of water) to reduce the tendency for air leaks into the furnace. The charge should be cooled to below 300 degrees F and the furnace flushed with air before opening.