

FT-D892-A1 Foam Plus Series Air Foam Bath Modules  
 For the determination of the foaming characteristics of  
 lubricating oils at 24°C, 93.5°C and 150°C

ASTM D892 & ASTM D6082.



*Foam Plus Series*



^ FT-D892-A-1-H : For 93.5°C & 150°C

< FT-D892-A-1-C : For 24°C with built-in Hybrid Cooling System.

### **Apparatus Design:**

ASTM D892 is carried out in three sequences 24°C, 93.5°C and 24°C, for production purposes it is prudent to have two positions at 24°C and one position at 93.5°C. Further if ASTM D6082 was also being done then another position is needed at 150°C. In Traditional foam apparatus, the average time to heat from 24°C to 93.5°C is about 30 minutes and from 93.5°C to 150°C is about 30 minutes. Similarly cooling down from 150°C to 93.5°C takes about 30 minutes and from 93.5°C to 24°C takes about 30 minutes. Hence changing bath temperatures during test sequences is grossly inefficient.

With this in mind, Forza has come up with an efficient design of a modular apparatus. This modular apparatus is a one-test position unit fully equipped to run the test. Firstly, this unit uses air as the bath medium. It does not have the unsafe and messy liquid bath medium of traditional baths. Further in this case the question of cross contamination of the test samples with silicon oil bath medium is eliminated. The cabinet is sturdy and well insulated with good visibility through a high temperature scratch proof glass viewing window in the front. The proprietary heating system is state of the art and microprocessor based with a touch panel interface. A high temperature limit is provided for safety, The Forza unit also has a mass flow controller which is far more accurate than rotameters which are susceptible to the changes of upstream and downstream pressure. In a mass flow controller the air delivery to the diffuser stone is repeatable and accurate irrespective of pressure or temperature changes. A mass flow based totalizer is also provided to monitor exit air as recommended by the test method. This modular unit has a small foot print.



cylindrical metal & spherical stone  
 gas diffusers are available.

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## Key Features:

- Complies with the requirements of ASTM D892, D6082 and related methods
- Air foam bath modules for performing tests at 24°C, 93.5°C or 150°C , with bath stability of better than  $\pm 0.5^\circ\text{C}$
- The unit is modular and compact and is fully equipped to run one test position. This affords the client the choice of using as many independent units as needed.
- The bath medium is air and eliminates the use of traditional bath liquids. Liquid bath mediums are potentially dangerous and also cause cross contamination of samples especially where silicon oil mediums are used.
- The Forza heated air baths are safe and clean.
- The Forza bath is a well-lit, well-insulated air foam-heating bath with a scratchproof high temperature glass for good visibility allowing for easy monitoring of foaming test oils.

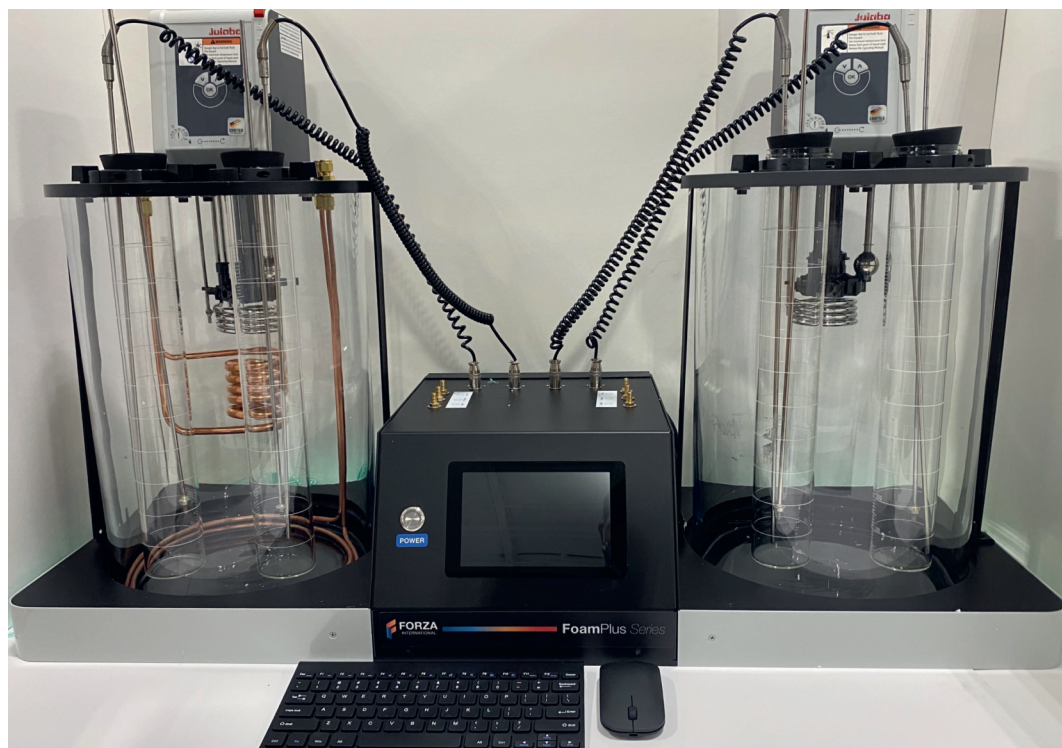
## Advantage of Modular Test Position System:

This modular one test position system offered by Forza enables a client to buy the exact number of positions required. As demand grows more single modular units may be bought. Further the units can be set up to run one temperature and not be heated up or cooled down frequently. This results in an enormous time saving. The units may be placed in different parts of the lab to optimize bench space.

## DUAL FOAM TEST LIQUID BATH - With MFC and Totalizer

Dual foam test liquid bath is the traditional arrangement with two glass jars mounted on a supporting base. Each jar accepts two, 1 liter test cylinders for ASTM D892. One bath is controlled at 24°C and the other for 93.5°C, with stability of better than  $\pm 0.5^\circ\text{C}$ .

- The air start, stop and settle timers are automatic.
- Totalizer (exit air measurement) as standard in all modules
- All test parameters like temperature flow, times and calibration are displayed and controlled on a touch panel interface.
- Mass Flow Controller Range : 94  $\pm 5$  mL/min for ASTM D892
- High temperature safety cut -off provided



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