FORZA INTERNATIONAL

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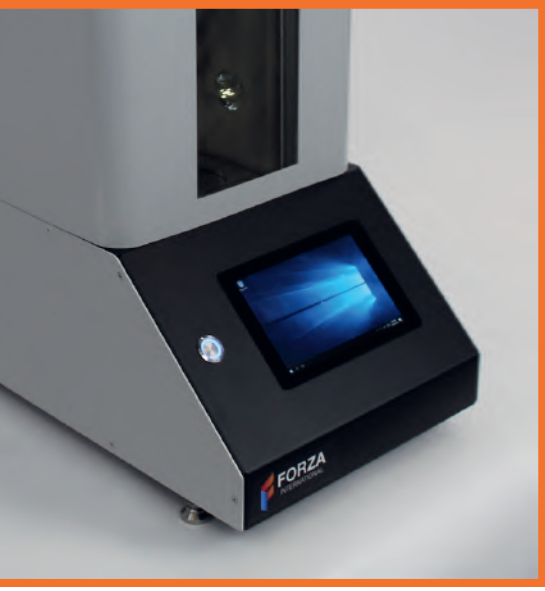
FT-D892-A1 Foam Plus Series Air Foam Bath Modules For the determination of the foaming characteristics of lubricating oils at 24°c,93.5°c and 150°c

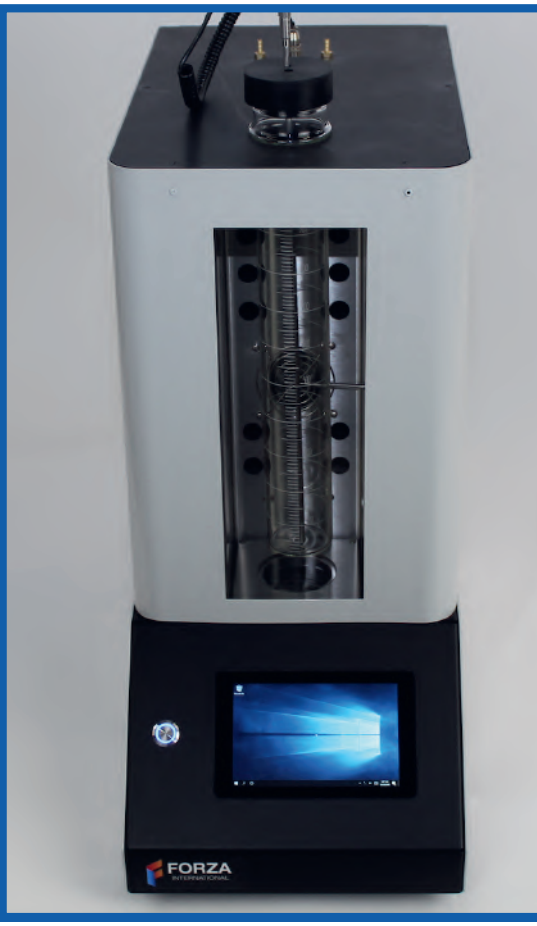
ASTM D892 & ASTM D6082.



Foam **Plus** *Series*

FT-D892-A-1-C : For 24'C with built-in solid-state chiller

FT-D892-A-1-H : For 93.5'C & 150'C



Test Method:

The ASTM D892 test method covers the determination of the foaming characteristics of lubricating oils at 24°C and 93.5°C. The test essentially consists of conditioning the sample at required temperature and when the sample has reached temperature, air is blown into the sample at 94 ml/min for 5 minutes. The foam remaining after 10 minutes from then is recorded. This is indicative of the foaming tendency of the oil. The test is sequentially done first at 24'C then at 93.5'C and then again at 24'C.For the ASTM D6082 the procedure is the same except that the test is run only at one temperature 150'C and the airflow is 200 ml/min.

Apparatus Design:

As mentioned in the above section since the 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.

Key Features:

- Complies with the requirements of ASTM D892, D6082 and related methods
- Air foam bath for performing tests at 24'C, 93.5'C or 150'C
- Operational temperature range of 'Ambient+5c to 160'C' with bath stability of better than +/- 0.5C
- 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.
- A microprocessor based state of the art system controls temperature, air mass flow, air mass totals and timers.
- The air start, stop and settle timers are automatic.
- All test parameters like temperature flow and times are displayed and controlled on a touch panel interface.
- Totalizer as standard in all modules.
- Mass Flow Controller Range : 94 +/-5 mL/min for ASTM D892 (or) 200 +/-5 mL/min For ASTM D6082 with Accuracy of ±1% FS*
- High temperature safety cut -off provided

Software Features:

The software is very intuitive and displays the temperature of the sample, the flow rate, the total flow and the soaking, foaming and settling times. Screens are also provided for setup and calibration of temperatures, air flows and times. The sequence of starting the air blowing, stopping it in 5 minutes and warning alerts are all automated. Our Proprietary F-HAT system combined with special algorithm provide you the unique uniformity in Heating, Airflow and temperature.

Safety Features:

- Safety limit for very high temperature•High temperature scratch proof glass viewing window in the front
- Password protected
- No cross contamination of test samples as compared to traditional silicon oil baths.

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.

Instruments	
Part Number	**Description**
FT-D892-A-1-C	Air foam bath for one position with solid-state chiller to work at 24'C in warmer environments.
FT-D892-A-1-H	Air foam bath for one position for operation from: Ambient+5c to 160'C
Accessories	
Part Number	**Description**
FT-D892-TT	Air foam 1000 ml Test Tube
FT-D892-MD	Mott Diffuser
Unit needs clean dry instrument grade compressed air at 25 psig Unit Dimension: W 12" X D 24" X H 25"	

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Vancouver | Oakville | Montréal | Edmonton

(604) 872-7894 (905) 333-5510 (514)735-5267 (780) 434-2645