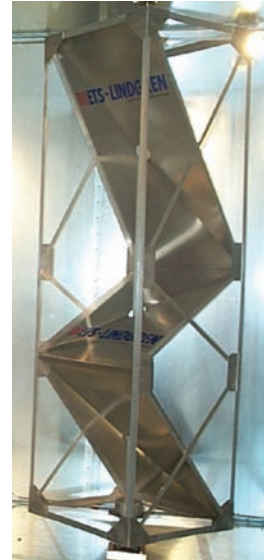


Features:

- **Robust Lightweight Construction**
- **Short Settling Time**
- **Efficient RF Scattering**
- **Sizes to Match Chamber Size**
- **Cross Section Based on Operating Frequency**
- **Synchronous or Stepper Motor**
- **Suitable for Tuned and Stirred Mode**



RF Reverberation Chamber Tuner

ETS-Lindgren's Tuners are made of large aluminum reflecting sheets supported on either a rigid box (truss) frame or a single spine and designed to provide the efficient reflecting surfaces necessary for use in a RF reverberation chamber.

Reverb chamber tuners are available as separate assemblies for retrofitting to existing shielded facilities. The Tuners are supplied with matched motor drives capable of up to 16 RPM for use in continuous rotation mode or with down to 0.1 degree resolution for use in tuned mode.

Most shielded rooms can be converted to Reverb chambers with the installation of one or more suitably sized automatically controlled tuners.

The chamber should ideally have dimensions, which are not integer multiples of each other to reduce mode degeneracy and be large enough to support multiple modes.

Tuner Selection

ETS-Lindgren can help with the selec-

tion of a suitably sized tuner but as a general guideline the tuner should be selected so that its cross section is at least $\frac{1}{3}$ a wavelength at the lowest operating frequency for the chamber.

The ETS-Lindgren Tuners can be installed as single units or in pairs depending on the chamber size and the lowest operating frequency. If installed in pairs, the typical arrangement is to have one positioned vertically and the other horizontally. For single installations select the tuner to match the longer of the height or width dimension of the chamber. This ensures that you have the minimum of unstirred energy in the chamber.

The standard cross sections of the tuners are shown in the table below and are they are available in varying lengths depending on the chamber size.

The model 3030 and larger tuners can be computer controlled using the separately available 2090 Multi-Device controller. The 2090 provides a digital display of the angular position of up to two tuners and can be used to

control the speed and position of the tuners in both the stirred or tuned mode operation. The 2090 has an IEEE 488 interface for computer control using the Reverb chamber control software. Tuners smaller than the model 3030 use DC stepper motors. These are controlled using the 109488 stepper motor drive. The 109488 is typically used on mobile reverb chambers mounted on the back wall. It can also be used for controlling up to two tuners and uses an RS232 port for each tuner. So for two tuner operation, two ports will be required.

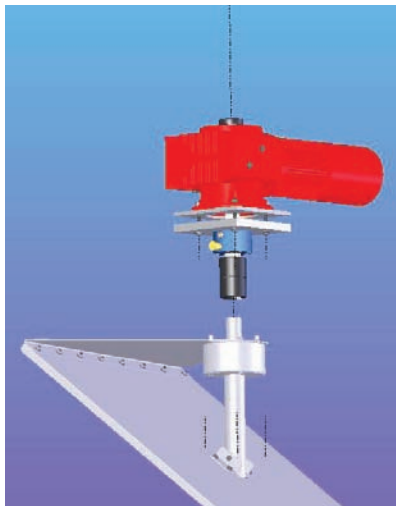
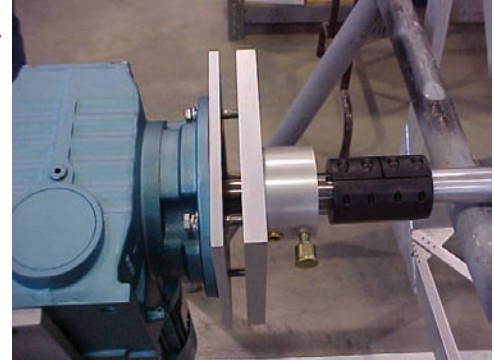
Installation

Tuners supplied for fitting into an existing chamber can be designed for installation into either a single skinned surface or modular (sandwich) type (see photo, page 2). The modular type is most common for large chambers and in either case the internal wall to wall or ceiling to floor dimension will need to be specified. Available space and access will be needed to install the motor drive and our team of qualified installers is available to assist. For tuners over 6m in length, a separate central support will be needed.

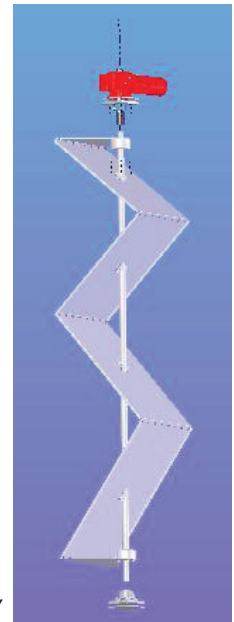
Software

ETS Lindgren's own SMARTImm and SMARTEmi software was developed specifically for Reverb chamber control and can be used for Immunity, Shielding Effectiveness and Emission measurements. The software contains drivers for the standard tuner controllers as well as a host of other instruments from the traditional equipment manufacturers.

RF Feedthrough Bearing Assembly



3030 Tuner Motor and RF Penetration



Typical 1515 Tuner Assembly

Tuner Sizes

TUNER TYPE	SIZE (L = LENGTH TO ORDER)	LOWEST FREQUENCY (TYPICAL)	TYPICAL CHAMBER DIMENSIONS (APPROX.)
0606	.15 m x .15 m x L .5 ft x .5 ft x L	1 GHz	1.5 m x 1.0 m x 0.7 m 4.92 ft x 3.28 ft x 2.29 ft
1515	.38 m x .38 m x L 1.25 ft x 1.25 ft x L	800 MHz	2.0 m x 1.2 m x 1.5 m 6.56 ft x 3.93 ft x 4.92 ft
3030	.76 m x .76 m x L 2.5 ft x 2.5 ft x L	200 MHz	6.0 m x 5.0 m x 3.0 m 19.69 ft x 16.40 ft x 9.84 ft
4848	1.22 m x 1.22 m x L 4.0 ft x 4.0 ft x L	100 MHz	8.0 m x 5.0 m x 3.0 m 26.25 ft x 16.40 ft x 9.84 ft
6060	1.52 m x 1.52 m x L 5.0 ft x 5.0 ft x L	80 MHz	13.0 m x 6.0 m x 5.0 m 42.65 ft x 19.69 ft x 16.40 ft
7272	1.83 m x 1.83 m x L 6.0 ft x 6.0 ft x L	70 MHz	18.0 m x 15.0 m x 7.0 m 59.06 ft x 42.21 ft x 22.97 ft

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