ECCOSORB® VHY-NRL

PYRAMIDAL HYBRID ABSORBER

Description

ECCOSORB VHY is a solid, pyramidal shaped, carbon-loaded, hybrid absorber which has been designed for use in EMC test chambers. It consists of a thin lightweight matching layer and a pyramidal shaped resistive top part. It is meant to be used on top of ferrites and provides an adequate wideband performance for EMC test chamber applications in the frequency range from below 30 MHz to over 30 GHz when combined with the correct ferrite. Frequently it is the only possible absorber choice if there are severe space constraints. For large EMC facilities (TL = 10 meters and large EUT), ECCOSORB HX (see technical bulletin EB-125) is usually the most cost-efficient absorber solution. For Antenna or RCS test chamber, ECCOSORB VHP (see technical bulletin EB-100) are usually the preffered solutions because of better performance at microwave frequencies. Whereas the ferrite part is non-combustible, the matching and pyramidal parts are fire-retardant according to the U.S. Naval Research Laboratory (NRL) 8093 Specification.

Application

Typically, ECCOSORB VHY-12 and VHY-18 are used in fully compliant 3m chambers whereas ECCOSORB VHY-30 and VHY-40 are used in fully compliant 10m chambers. However, the optimal layout depends on the precise chamber dimensions and test configuration. It can only be determined by numerical simulation of the performance of the proposed anechoic chamber.

Physical properties

	ECCOSORB VHY
Standard color	Blue
Base size (cm)	60 x 60
Max service temperature	90°C
Power handling	1,5 kW / m² or 600 V / m
Fire retardancy	NRL8093 Tests 1, 2 and 3 DIN 4102 Class B2, ISO 11925-2

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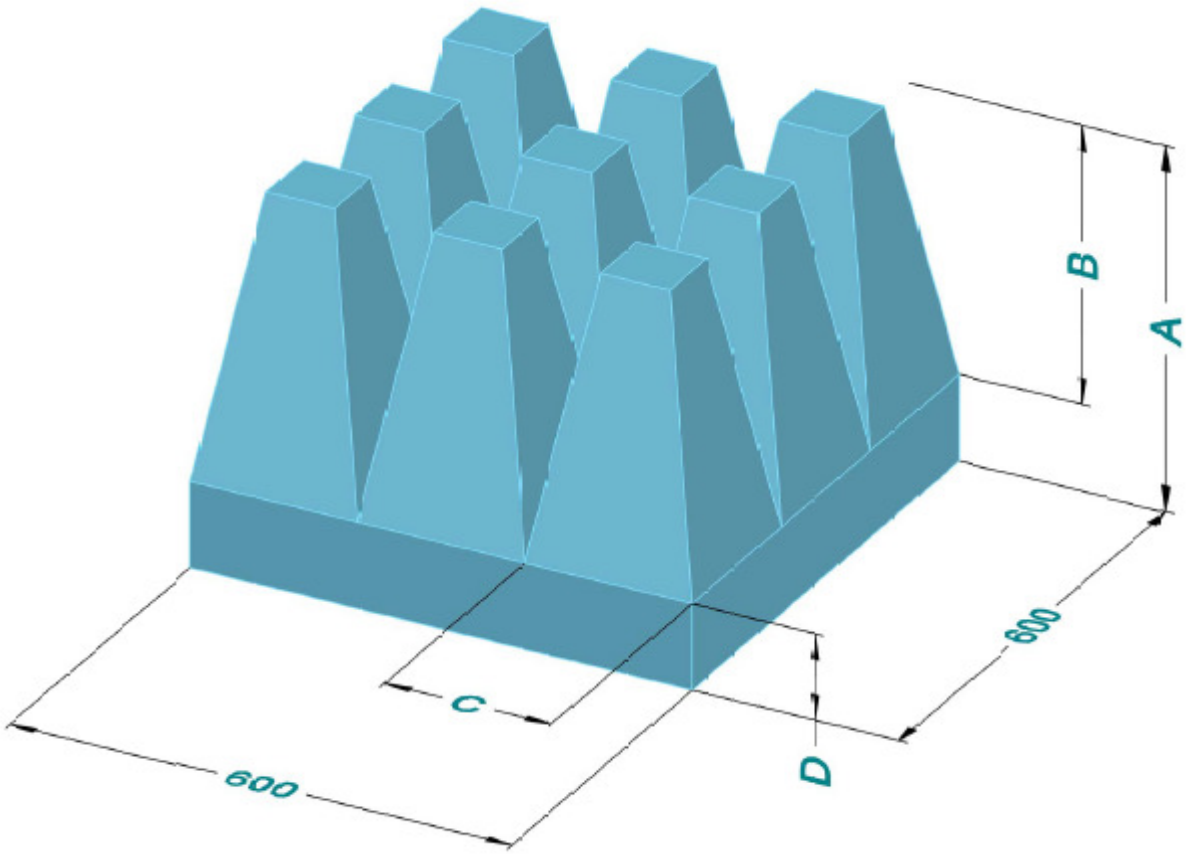
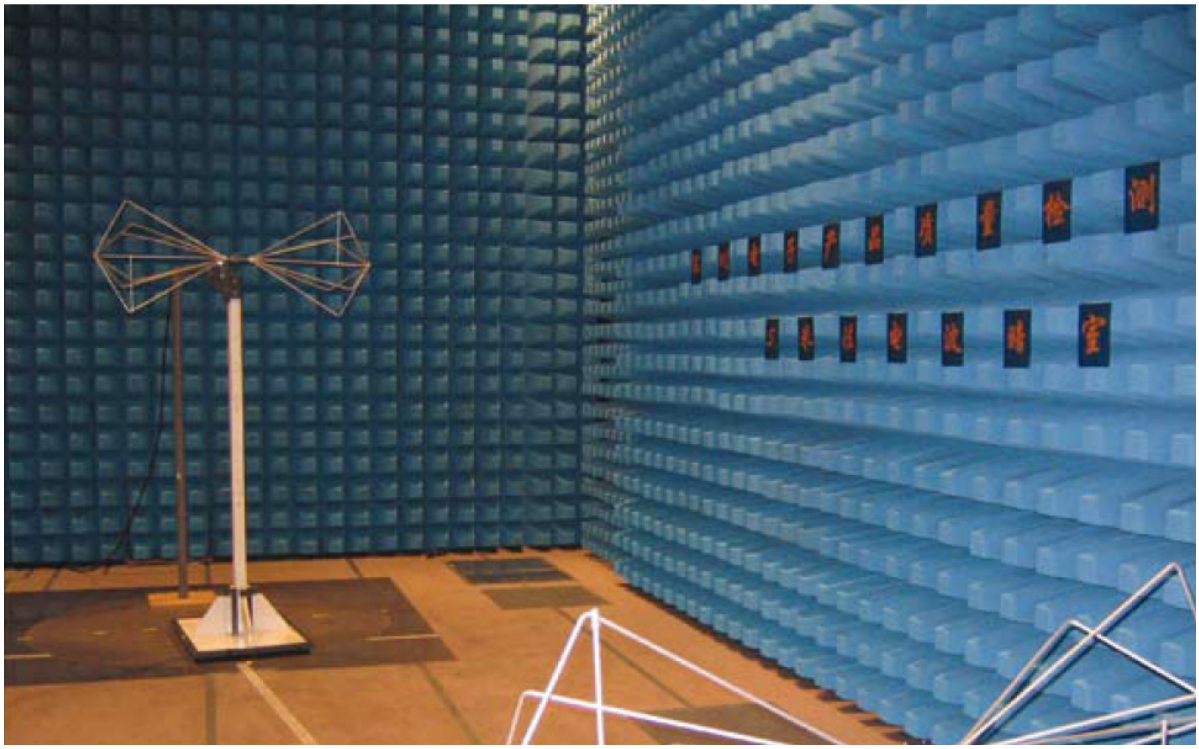
- **Nominal dimensions and weights of ECCOSORB VHY**

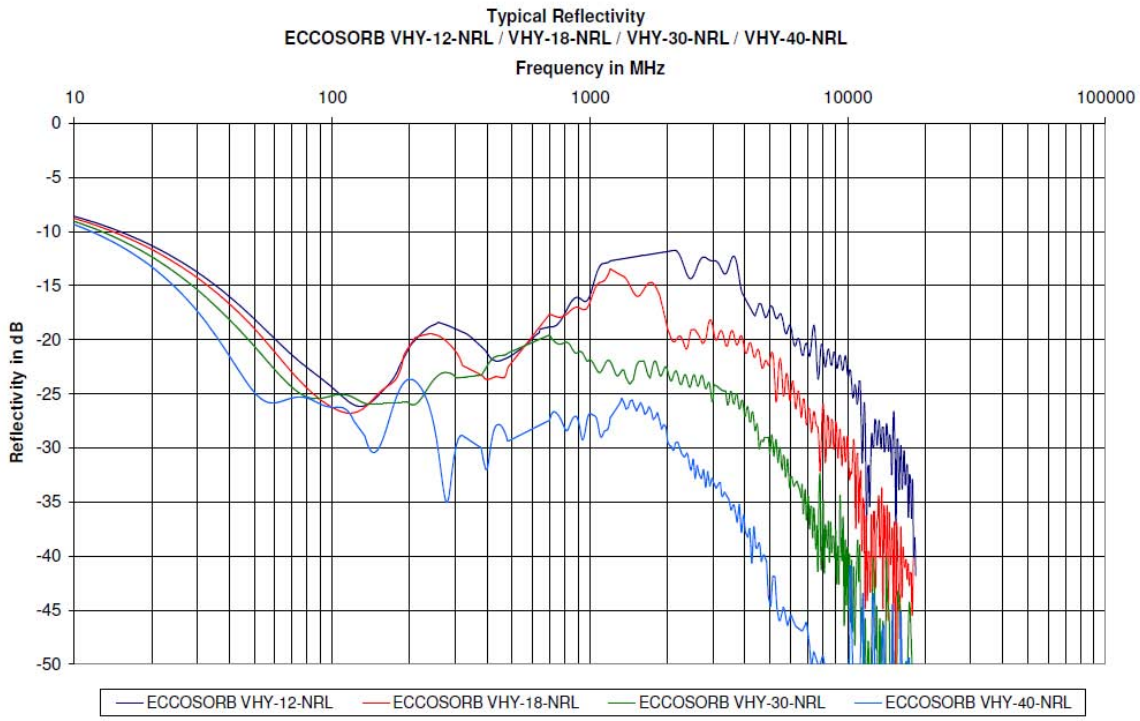


	Total height A (cm)	Pyramid height B (cm)	Pyramid width C (cm)	Base height D (cm)	Number of pyramids per piece	Nominal weight (kg)
ECCOSORB VHY-12	32.5	25.3	15.0	7.2	16	3.0
ECCOSORB VHY-18	45.7	34.5	20.0	11.2	9	3.6
ECCOSORB VHY-30	77.4	69.2	30.0	8.2	4	4.5
ECCOSORB VHY-40	99.6	81.6	60.0	18.0	1	9.3



3 meters semi anechoic EMC chamber lined with ECCOSORB VHY-12 hybrid absorbers. The chamber is shown during radiated emission calibration with biconical broadband antennas.

Electromagnetic properties



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Availability

ECCOSORB VHY is available in four thicknesses, according to the required performance. It concerns ECCOSORB VHY-12, VHY-18, VHY-30 and VHY-40, where the numbers give the total hybrid absorber thickness in inches.
The ferrites for use in anechoic rooms consist of 10 x 10 cm ferrite tiles, which have to be glued or screwed carefully to a flat metallic surface. Most often the tiles will be supported by the shielded walls, ceiling and floor of the shielded room surrounding the EMC test chamber.
The matching and pyramidal part of the absorber pieces have base dimensions of 60 x 60 cm and are adhered to the ferrite tiles.
ECCOSORB VHY can be delivered with white caps, as shown in the photograph below. White caps offer several advantages like light reflecting white walls, protected absorber tops, more attractive working volume, chamber easier to clean.

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