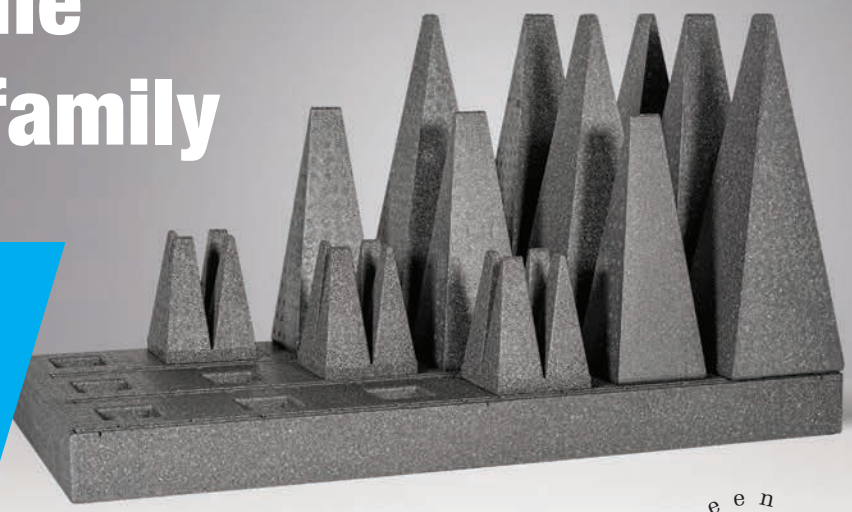
# Introducing Hybrid Absorbers

## A closed-cell, carbon loaded polystyrene absorber solution for semi-anechoic test chambers.

Since the introduction of hybrid absorbers in 2011, DMAS has raised the industry standard to a new level. Thanks to great durability and polystyrene material features, our absorbers come with a 25-year warranty. Additionally, they are environmentally friendly and compliant with REACH and RoHS directives. DMAS Hybrid absorbers can be used for various EMC testing applications, typically performed in semi-anechoic chambers.

DMAS
DUTCH MICROWAVE ABSORBER SOLUTIONS

# Introducing the HT absorber family



**The hybrid absorber is a broadband, closed-cell carbon loaded polystyrene absorber with an operating frequency starting at 10 MHz up to 40GHz. The HT absorber models are specifically tuned for perfect performance in semi- and full anechoic chambers using a matching ferrite tile.**

All hybrid absorbers have a modular design of separate pyramid tapers and baseplates. The baseplates are accommodated with alternating sockets in which the tapers are fitted. Upon customer request the absorber tapers can be equipped with a protective white end cap.

The most noticeable distinguishing factor of each model is the absorber height, product weight and reflectivity performance. All three models can be incorporated in fully customized EMC chamber designs, taking requested performance criteria and chamber characteristics into account. The HT absorber family consists of three models, which are shown in below table.

| Model | Total Height | Pyramids |
|---|---|---|
| HT25 | 250mm / 10inch | 128 |
| HT45 | 450mm / 18inch | 32 |
| HT65 | 650mm / 26inch | 18 |

## Eco-friendly

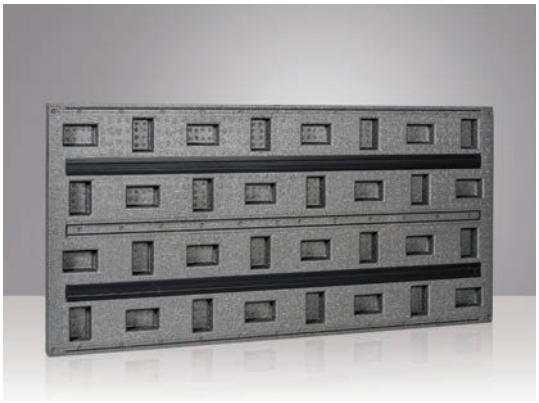
All our absorbers are 100% environmentally friendly, meaning their chemical composition does not contain poisonous fire-retardant chemicals and is free of toxic smells. Due to the closed-cell polystyrene structure, there is no leakage of carbon particles, which is often seen using traditional open cell structure foam absorbers in EMC test chambers. All DMAS hybrid absorbers are compliant with European REACH and RoHS directives.

## Quality control

DMAS polystyrene absorbers are manufactured in The Netherlands and production is executed under tight quality control according to latest edition of ISO 9001 and ISO 14001 standards. Each production cycle is carefully tested in our own laboratory, all following IEEE Standard 1128 guidelines.

## Features & Benefits

- Closed-cell polystyrene material (no leakage of carbon particles)
- Uniform carbon cell loading resulting in stable performance
- Modular design using baseplate & tapers (damaged tapers are easily replaced)
- Easy installation method using screws & plastic mounting strips (no adhesives required)
- Lightweight product
- Rigidity and superior tensile strength (no drooping absorber tips)
- Resistant to humidity (does not absorb moisture from the air)
- Superior product lifecycle (25+ years)
- Environmentally friendly and compliant with REACH and RoHS directives
- Certified for clean room environments (ISO 14644-1 class 4)
- Compliant with internationally recognized fire-retardant standards
- Can be equipped with protective white end caps



## Installation method

Compared to traditional foam solutions, our polystyrene absorbers are considered lightweight and are very easy to handle during installation due to its modular product design. For installation it is recommended to use a mechanical installation, using hard plastic mounting strips and screws, which fits seamless onto our baseplates.

After installment of the baseplates, all tapers can be easily inserted. If you consider relocating your EMC facility in the future, tapers can be removed and baseplates can be unscrewed from the chamber walls, ready to be fitted a second time.

## Ferrite tile

All DMAS hybrid absorbers are meant to be used on top of ferrite tiles. After extensive testing and evaluation, we have selected the best matching ferrite tile for our hybrid polystyrene absorbers. This is a sintered ferrite tile, which can be supplied with or without a centered hole, and providing excellent electromagnetic absorption performance from 10MHz - 1GHz. The ferrite tile can be directly glued to the shielding enclosure or screwed to an inner structure which enables easy installation.

## White end caps

The main purpose of white end caps is to enhance the light density inside anechoic chambers. End caps are also used to protect the absorber taper tips against damaging. The end caps are made of polystyrene and available in white and grey color. The grey ones are typically used to protect floor absorbers during handling and stacking.

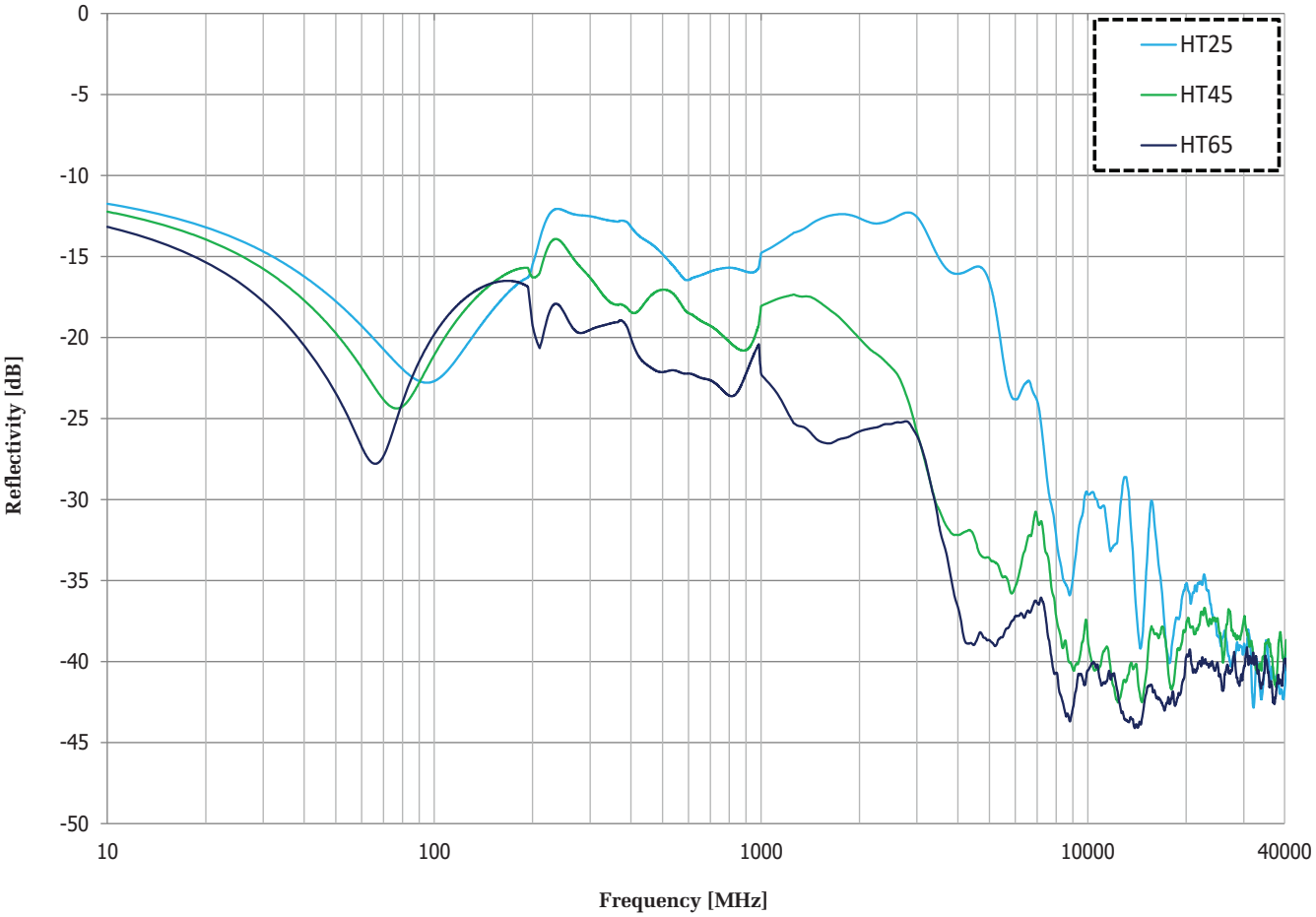
## Ferrite floor absorbers

The wideband ferrite floor absorber is designed to facilitate the use of all semi anechoic chambers for full compliance radiated immunity testing. The ferrite floor absorber used in combination with the hybrid absorber model HT45 is perfectly suited for a floor setup for immunity testing according to IEC/EN-61000-4-3.

# Hybrid Absorber specifications:

| Models: | HT25 | HT45 | HT65 |
|---|---|---|---|
| Material | Expanded polystyrene (EPS) | | |
| Color | Dark grey | | |
| Baseplate dimension | 1200 x 600 x 50mm | | 1200 x 600 x 100mm |
| Absorber height* | 250mm (10") | 450mm (18") | 650mm (26") |
| Nominal weight | 3.3kg | 4.7kg | 7.5kg |
| Frequency range | 10MHz – 40GHz | | |
| Max. absorber temperature | +70°C | | |
| Max. power density (CW) | 600V/m | 600V/m | 500V/m |
| Humidity resistance | Resistant to water and moisture | | |
| Product life cycle | 25+ years | | |
| Quality control | IEEE Standard 1128 / ISO 9001 | | |
| Fire retardancy | ISO 11925-2 class E / UL94-HBF / DIN 4102-1 class B2 | | |
| Clean room | class 4 as per ISO 14644-1 / class 10 as per US Fed. Std 209E | | |
| REACH compliant | According to EC 1907/2006 | | |
| RoHS 3 compliant | According to 2015/863/EC | | |
| White end cap | For improved illumination and protection (supplied as option) | | |
| Notes | *including the baseplate | | |

## Typical performance at normal incidence:




## Warranty

Values shown are based on testing of laboratory test specimens and represent data that falls within the normal range of purpose. These values are not intended for use in establishing maximum, minimum or ranges of values for specification purposes. Any determination of the suitability of the material or any use contemplated by the user and the manner of such use is the sole responsibility of the user who must assure that the material as subsequently processed meets the needs of this particular product or use. The given information is based on data and knowledge considered to be true and accurate and is offered for the user's consideration, investigation and verification but we do not warrant the results to be obtained.