

VARIQUIET

ACCOUSTICAL PANEL SYSTEM

HESCO, The recognized industry leader in the field of insulated composite metal cladding and the first in the middle East to introduce acoustical metal panels system for noise pollution control.

Today no other company offer a wide choice of panel types and specifications to solve various noise problem in the industrial filed.

The acoustical metal panels manufactured by HESCO offer excellent acoustical characteristic equal to the best acoustical metal panels produced in the existing market. HESCO acoustical panels have already been used in many prestigious project in the Kingdom and approved by government institutes and the most reputable international consultants. HESCO research and development team is continuously striving to make our acoustical panels function better for you. We utilize years of experience of our international technical partners and the worlds best and most reputable independent acoustical laboratories.

“NOISE” UNWANTED SOUND

People do not like noise, noise by definition is unwanted sound, it may be annoying, it may interfere with speech communication and it may effect behavior and at high levels it may produce temporary or permanent hearing loss. Because of recent technological development, noise control has become a matter of considerable social and economical importance. HESCO has realized the importance of this problem in the modern industry and has put a lot of research and laboratory studies to develop acoustical metal panels of the highest quality. Many industrial noise control problems can be solved by using acoustical products to confine the noise source in an enclosure or to exclude the noise from an enclosure or to absorb noise to reduce noise level in an enclosure.

THE HUMAN EAR

Sound is usually composed of many frequencies, the human ear cannot hear all frequencies and is not equally sensitive to all frequencies. The following table will compare some common sounds and identify the corresponding sound pressure levels in (Decibels)

Example	Loudness	(dBA) Sound Pressure Level
Jet Plane	Deafening	140
Hydraulic Press	Very loud	120
Industrial Plant	Very loud	100
Vacuum Cleaner	Very loud	80
Average Office	Loud	60
Average Home	Moderate	50
Whisper	Faint	30
Sound Studio	Very faint	10

BUILDING REGULATION

International standards in building designs usually stipulate that noise level of the inside of any given building should be less than a certain decibels for workers to be permitted to stay within that building. Government regulations also stipulate that environmental noise levels outside certain industrial buildings should be brought down to a certain level in order that public nuisance will not be created.

SOUND ABSORPTION (NRC)

The ability to soak-up sound energy is referred to as noise reduction coefficient (NRC rating) which is measured in accordance with ANSI / ASTM C423-84a and E975. HESCO offer a wide range of acoustical panel system with sound energy absorption characteristics ranging from 45% to 95%. HESCO acoustical panels are less expensive than conventional acoustical treatment methods with the added benefit of strong structure and good insulation qualities.

SOUND TRANSMISSION (STC)

When sound waves reach a barrier wall some of their energy are reflected, absorbed and transmitted. The control of unwanted sound either into a building from an outside source or from room to room within the same building is usually a serious design problem. The idea is to design a wall which requires the noise to give up a high degree of its sound energy during the transmission process. Sound transmission is indexed by (STC rating). Sound transmission classification as tested in accordance with the procedures defined in ASTM E90-85 and E413-73. HESCO can offer a wide range of wall constructions having various structural forms to suit building design and application.

TWO BENEFITS IN ONE WALL

The flexibility of metal panels will allow the designers to specify walls which can have both sound absorption and sound transmissions qualities. The idea is to use the combination of perforated metal liner and acoustical insulation on a concrete wall. The liner and acoustical insulation will provide noise reduction while the concrete wall will slow down the unwanted noise when it passes through. Thereby, the system will provide both increase in noise reduction and reduction in sound transmission.

VARIQUIET ACOUSTICAL QUALITIES

All materials absorb sound to a certain extent. Acoustical material is the material which absorb a high percentage of the incident sound energy striking the surface. Perforated steel panels provide the most flexible and highest effectiveness of NRC and STC rating. The following table compares the expected typical rating for general building products.

Material	NRC	STC
Brick, single layer	0.04	45
Concrete blocks	0.06	50
Gypsum boards 12.5 mm	0.07	26
Plate glass 6 mm	0.04	31
HESCO varifoam standard	0.15	27
HESCO acoustical varifoam	0.45	27
HESCO variquiet panels	0.95	44

TECHNICAL DATA & VARIQUIET SPECIFICATION

SCOPE OF WORK: Supply of perforated metal panel work on wall including the necessary acoustical insulation, furring channels and all related fasteners, trims and flashing as per HESCO standard details and shop drawings.

PRODUCT DESCRIPTION: Variquiet, field assembled acoustical wall panel system having a perforated metal liner and acoustical insulation fixed in hat shape furring channels.

METAL PANELS: Perforated steel panels, 305 mm wide; formed from galvanized steel sheets gage 0.60 mm to 0.75 mm and conforming to ASTM A446 structural quality with hot dipped commercial quality galvanization designation G-90. Perforation shall be in diameter 3 mm and spaced 10 mm staggered to achieve noise reduction coefficient (NRC) of 0.95 or better. Side joint shall be male / female interlocking type formed from solid material. Side joint shall be formed as per HESCO standard details and shall be sealed using a special EPDM neoprene gasket. Panel finish shall be in high quality multi-layered baked Coating having HESCO standard Bonewhite colour at the exposed face and a standard wash coat at the backface. The finish type specifications shall be one of HESCO standard coatings which is Polyester finish for internal or KYNAR PVF-2 for external use or depending on the application.

ACOUSTICAL INSULATION: Fiberglass blanket insulation, approximately 38 – 50 mm thick and have special properties to achieve NRC value of 0.95 or better and shall be foil face or vinyl backed at one side. Wire mesh spacer made of galvanized steel mesh approximately 25 x 25 mm shall be used between perforated sheets and acoustical insulation.

FURRING CHANNELS: Hat shape galvanized steel conforming to ASTM A446 designation G-90 having a gage of approximately 0.7 mm or as recommended by HESCO. Depth, girth and spacing of furring channels shall be as per HESCO standard details and recommendation.

FASTENERS: Concealed fastening system using stainless steel fasteners to fix panels to furring channels and stainless steel pop rivets to fix the necessary flashing shall be provided by HESCO as per HESCO engineering details and standard practice.

TRIMS AND FLASHING: Using solid materials having the same gage, finish and matching colour as that of the perforated panels. Flashing location, girth and fixing detail shall be in accordance with HESCO standard engineering details.

VARIQUIET INSTALLATION INSTRUCTION:

1. Securely fasten hat-shaped furring channel to walls using special concrete fasteners as per HESCO standard and recommendation.
2. Install perforated metal panels plumb in proper alignment level to within a ratio of 1 to 500 and in strict accordance with HESCO shop drawings and instructions. Arrange panels symmetrically on each surface, unless otherwise indicated. Lay wiremesh spacer in perforated panels before placing acoustical insulation to keep insulation slightly back from perforated face.
3. Acoustical insulation shall be a snug fit in perforated panels.
4. Cut metal panels shall be at least 50 percent of unit width. Scribe panels to fit adjacent work. Apply trim and fastenings as per HESCO standard details and recommendation