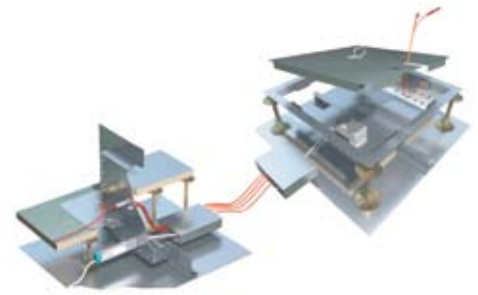
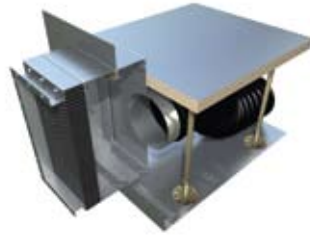
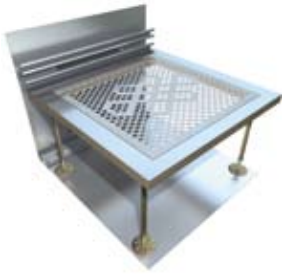


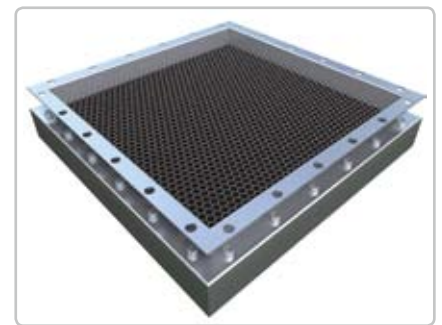
Ventilation & Feed-Through Components



From Penetration Panel to Floor Connection Panel

Ventilation / Air Conditioning

Ventilation / air conditioning of shielded rooms is on principle realized by so-called honeycomb inserts. The diameter and the length of the individual honeycomb openings depend on the maximum usable frequency of the chamber. The standard configuration of our honeycombs is for a frequency range from 10 kHz to 18 GHz. For smaller rooms, and if the surrounding room is well ventilated, a diagonal installation of the honeycombs will provide sufficient ventilation. For larger chambers, additional fans with adjustable speed can be installed in front of the honeycombs using connecting flanges, which are available as standard. The same connecting flanges can also be used for a direct connection to air conditioning systems. For special applications honeycombs with a frequency extension up to 40 GHz are available.



Honeycomb

Penetration Panels / Feed-Through Components

All feed-throughs into the chamber must be installed using special RF-shielded feed-through components, which guarantee high shielding attenuation characteristics over the whole specified frequency range. Since the requirements regarding durability may change, the feed-through components are normally screwed onto exchangeable penetration panels, which are bolted to the shielding panels. Penetration panels are available in standard sizes of 400 x 400 mm and 500 x 500 mm and they may be ordered separately, if required later.

Penetration Panels Anechoic Chambers

In rooms with absorber lining, an additional "C-type" frame is installed in front of the installation panels; this provides a larger installation space between shielding panels and absorbers, which is an advantage especially when the bending radius of cables would become critical. On the inside, the absorbers in the proximity of the penetration panels are installed on swivelling covers or on mobile supports. Convenient access to the penetration panels is assured.



Direct connection to air conditioning system

Coaxial Feed-Throughs

By design, coaxial feed-throughs in the installation panels are realized as "N-type" since they qualify for highest shielding attenuation characteristics. The conversion to all other types is performed on the inside and outside using suitable adapters. A threaded sealing cap is included in the delivery for coaxial feed-throughs, which are not used permanently.



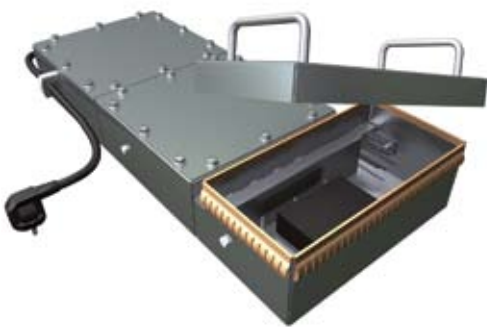
Penetration panel with C-type frame

Feed-Through Components



Power-, Data- and Signal Line Filters

The feeding of all mains, data and signal lines has to be realized via suitable filters whose insertion loss corresponds at least to the shielding attenuation values of the shielded chamber. We offer a wide range of filters for various applications, e.g. mains filters, single-phase and three-phase, from 1 A to 800 A in standard version, or with low leakage current, 400 Hz filters, telephone line filters, filter assemblies for up to 200 data lines etc.

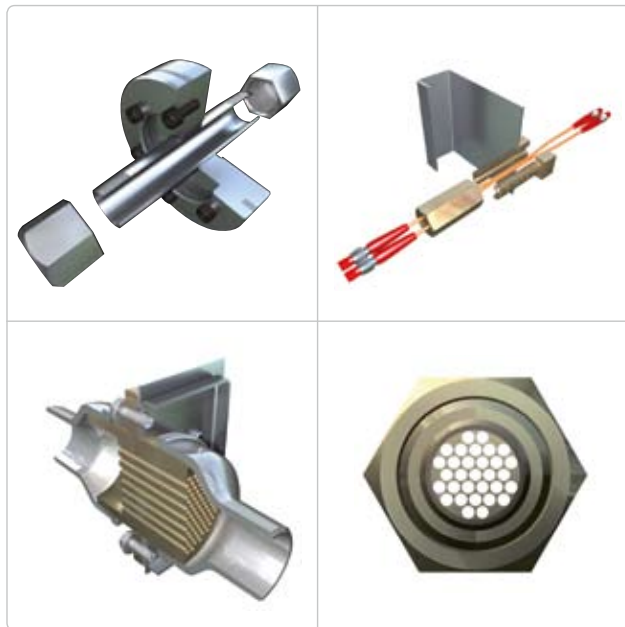


Fibre Optic Converters

Due to continuously increasing data transmission rates, the use of data and signal line filters is often not recommended since the lowest critical frequency of these filters would have to be relatively high to guarantee perfect data transmission (influence on the shielding attenuation characteristics). Provided that suitable converters are available on the market, we recommend the conversion to fibre optics. At present we can supply fibre optic converters for the following connections: GPIB, RS-232, RS-485, RJ-45 (Ethernet), USB....

RFI Trap

The mechanical design of this feature is similar to the drain siphon of a washbasin, with one half on the outside and the other half on the inside of the chamber / room. With the filling of copper granulates it is possible to feed all kinds of shielded cables into a chamber / room without disconnecting them (as in case of the filters or coaxial feed-throughs). The external plastic isolation of the corresponding cables has to be stripped off in the section where the cable would pass through copper chips, so that the shielding of the cable is uncovered. After inserting the cables, the passage is filled from both sides with copper chips of 1-2 mm size; this assures the electric contact of the cable shielding with the shielding panel. The RFI Trap can be mounted on an penetration panel. Appropriate openings are provided for the removal of the copper granulates.



Feed-Throughs for fibre optics, compressed air, water and oil

For feed-through of fibre optics and compressed air, it is possible either to install suitable feed through connectors (cables connected on both sides) or wave-guide tubes (cable itself would penetrate the shielding). For the latter we recommend our "universal screw-type feed-through" or "multi-hole-feed-through" which can be disassembled completely (like a nutshell) to insert the cables, so that the size of the plugs is only of minor importance. Additionally we offer special feed-throughs for liquids, like water and oil but also for compressed air.