Ongoing Discussion

An increased risk in the occurrence of brain tumors in medical personnel due to high dose work environments, such as interventional radiology, is currently a focus of research.

Particularly in work places where dose values cannot be reduced by a radiation protective shield or another protective system, the head is exposed to a significant amount of radiation.

The figures 1 and 2 exemplify typical medical procedures involving X-Ray radiation without a sufficient radiation protective shield.

The Challenge

To fulfil the high demands for radiation protection of the head and to ensure a comfortable usage, a thoroughly thought out design of the protective headwear is required.

The already required X-Ray protective clothes for medical personnel in high dose work environments create an additional physical exertion. By wearing protective headwear as a supplementary part of the personal protection, the physical stress for the user is increased.

Solutions for Experts

Keeping the needs of our customers in mind, MAVIG developed three individual X-Ray protective headwear solutions. The three designs have different protective and air permeable surface areas.

The design protected variations can be optimally adjusted to individual head circumferences. By this one-size-fits-all approach, the protective headwear features a correct fit and high level of wearing comfort for the user.

Headwear Features

<table>
<thead>
<tr>
<th>Material</th>
<th>Weight-optimized Novalite X-ray protective material</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lead Equivalent Value</td>
<td>Pb 0.25 mm, Pb 0.35 mm, Pb 0.50 mm</td>
</tr>
<tr>
<td>Outer Cover / Colour</td>
<td>ComforTex® HPMF available in the colours: Curacao, Regatta, Ocean, Lagoon, Limette, Indian Summer, Orchidee</td>
</tr>
<tr>
<td>Head Sizes</td>
<td>Suitable for head sizes 54 - 63 cm.</td>
</tr>
<tr>
<td>Embroidery</td>
<td>Embroidery on the left side upon request.</td>
</tr>
</tbody>
</table>

MAVIG X-ray protective headwear complies with DIN EN 61331-1, DIN EN 61331-3, DIN 6857-1, and the German X-ray ordinance. Naturally, these models also have passed EC-type examination and are certified in accordance to PPE 89/686/EEC (CE/PPE).

MAVIG X-ray protective clothing provides the assurance of fulfilling all applicable legal specifications.
Headwear for Medical Personnel

**Series RA610**
**Protective Head Band**

The head band protects the front and side of the head. The top of the cranium is not covered by the head band.

Nevertheless, the head band offers an additional X-Ray shielding of the cranium in depending on the angle incident.

**Series RA611**
**Protective Head Cap with Breathable Airflow Strip**

This model is the perfect compromise between an enhanced radiation protection of the cranium and heat transmission.

**Series RA612**
**Enclosed Protective Head Cap**

The enclosed head cap provides radiation protection of front, side, and top of the head.

Heat transmission is lessened.

**PROTECTIVE EFFECT**

The choice of using a 0.25 Pb mm lead equivalent was made after much thought in finding a correct balance between protection and weight.

(Please see the comparison chart for more information)

Higher lead equivalent values are of course feasible, but this would increase the weight and add more physical stress to the user.
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