paediGAV™
A gravitational valve for the treatment of pediatric hydrocephalus

Aesculap Neurosurgery
When two strong partners combine their know-how, it often leads to innovative and groundbreaking solutions which could not be achieved independently by either of the partners.

Following this philosophy, Aesculap and MIETHKE have been working together since 1993. Our aim was and still is to develop better solutions for the complex treatment of hydrocephalus.

The paediGAV™ valve is the world’s first and only gravitational valve specifically developed for the treatment of hydrocephalus in children. The paediGAV valve combines the advantages of the tried and tested ball-in-cone valve with the advantages of a gravitational unit in one very slim, streamlined design. With paediGAV, even the tiniest patients can receive the benefits of a gravitational valve.

paediGAV Features and Benefits

- Unique gravitational technology provides increased resistance as patient moves upright, greatly reducing or eliminating overdrainage.
- Enables the surgeon to use different opening pressures for the supine and standing positions, managing overdrainage complications and patient discomfort.
- Titanium housing allows the paediGAV valve to be made extremely small, but still have large flow paths to help reduce the risk of obstruction.
- Ultra-low profile and streamlined shape for fast and easy implantation and improved aesthetics.
- Available in different pressure combinations to help manage the complex needs of different patients.

“We will continue to venture in new directions and cross frontiers in order to be able to help where no solutions have yet been found.”

—Christoph Miethke (pictured left)
paediGAV™ Pressure Selection

The *paediGAV* valve is available in different pressure level settings. Each pressure level is specially coded, enabling the valve to be identified on post-operative x-rays. Refer to product IFU for more information.

<table>
<thead>
<tr>
<th>Opening Pressure horizontal/vertical (cm H₂O)</th>
<th>X-ray marker code <em>paediGAV</em></th>
</tr>
</thead>
<tbody>
<tr>
<td>4/14</td>
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<tr>
<td>4/19</td>
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<td>4/24</td>
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<td>9/24</td>
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*paediGAV* Pressure Selection

Recommended settings only; may vary according to patient and medical history.

<table>
<thead>
<tr>
<th>Age</th>
<th>Recommended Valve</th>
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<tbody>
<tr>
<td>Up to 6 months</td>
<td>4/24 cm H₂O</td>
</tr>
<tr>
<td>6 months - 5 years</td>
<td>9/24 cm H₂O</td>
</tr>
<tr>
<td>Over 5 years</td>
<td>9/29 cm H₂O</td>
</tr>
</tbody>
</table>

- Neonates and slit ventricle patients may require a lower gravitational unit pressure.
- The more immobile the patient, the lower the pressure level.
- The more adipose tissue the patient has, the lower the pressure level.
paediGAV™

Function

For proper function of the gravitational unit, the paediGAV valve must be implanted in line with the patient’s body axis.

Supine Function

When the patient is in the lying position, intraventricular pressure is maintained solely by the ball-in-cone portion of the paediGAV valve.

- The low pressure setting of the ball-in-cone valve keeps the intracranial pressure within physiological limits.
- The valve balls in the gravitational unit move freely, keeping the flow path open and adding no resistance to the shunt system.
Upright Function

When the patient moves to an upright position, the gravitational unit of the paediGAV valve is automatically activated and resistance is added.

- The Tantalum Weight Ball and Sapphire Valve Ball of the gravitational unit are pulled down by gravity, adding increased resistance.
- CSF flow must now overcome the opening pressure of both the ball-in-cone valve and the gravitational unit, thus the overall pressure of the shunt system is increased, keeping the intraventricular pressure within physiological limits.
- The increased opening pressure in the upright position effectively prevents overdrainage, which can occur as a result of siphoning.