La válvula programable Polaris®, puede usarse de manera segura para el tratamiento de la hidrocefalia neonatal o congénita y son comparables a otras con respecto a las indicaciones, rendimiento y seguridad.

Con respecto a la prevención del hiperdrenaje, es necesario un seguimiento más prolongado (Martínez-Lage y col., 2008).

La válvula Polaris tolera campos magnéticos como los de la Resonancia de 3-Tesla (Inoue y col., 2005).

En un test de la válvula Codman Hakim (regular con SiphonGuard), Miethke ProGAV, Medtronic Strata, Sophysa Sophy y Polaris, todas, con la excepción de la Polaris y modelos proGAV, fueron propensas a la reprogramación no intencional cuando se expone a campos magnéticos más fuertes de 40 mT. Todas estas se consideraron seguras para la RM de 3-T. Todas las válvulas generaron una distorsión de la imagen de RM, especialmente las secuencias de la General Electric (Lavinio y col., 2008).

En un test con juguetes cuya densidad de flujo máxima de los campos diferían entre 17 y 540 mT, la válvula Polaris no pudo ser alterada a cualquier distancia gracias a su arquitectura con dos imanes ajustadas en direcciones opuestas (Zuzak y col., 2009).

Concretamente con el juego Nintendo DS Lite (DS), solo resistieron la Polaris y la proGAV, mientras que la Codman-Hakim y la Strata no lo resistieron (Nakashima y col., 2011).

En un test con estimulación magnética transcraneal (EMT) de la válvula Strata 2 de Medtronic, la Polaris de Sophysa, la ProGAV de Miethke, y la Codman-Hakim, se apreció que pueden interferir con todas, lo que sugiere el gran cuidado de aplicar EMT en pacientes con hidrocefalia, tratadas mediante estas válvulas (Lefranc y col., 2010).

En otro test la Codman-Hakim, la Sophy y la Strata no resistieron los 190 mT, que si en cambio lo hicieron la proGAV y la Polaris (Nakashima y col., 2010).

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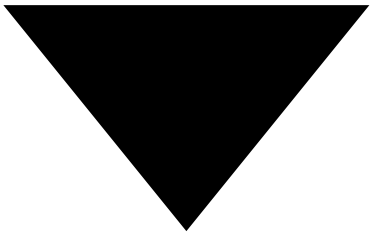
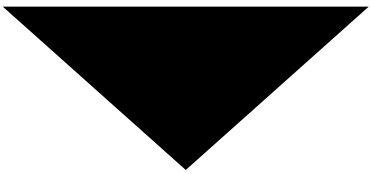
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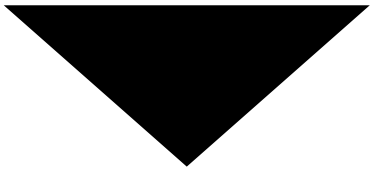
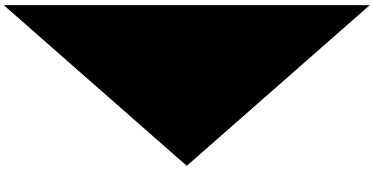
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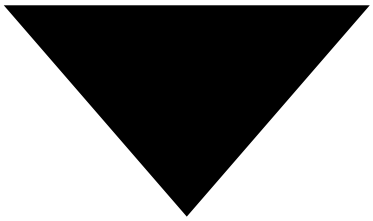
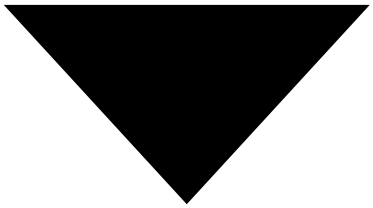
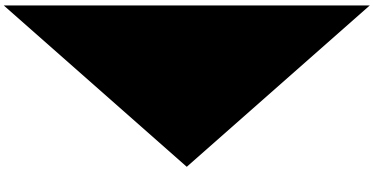
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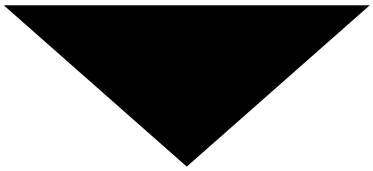
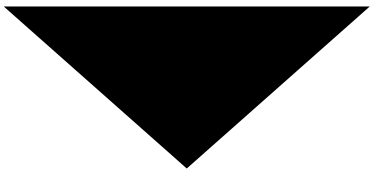
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	**1.** Operating pressure range visible on Locator MUST match valve range.
	**2.** Valve location should determine optimum patient position for adjustment. Having valve horizontal is recommended.

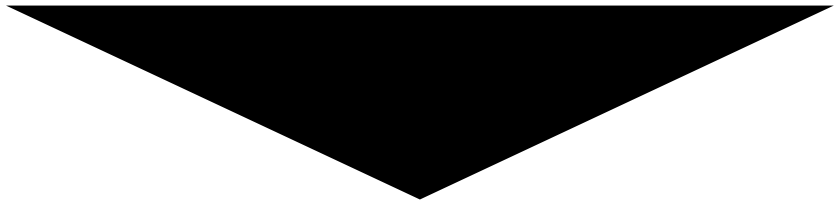
	**3.** Position Locator parallel to valve, with valve seated in center cut-out, and green arrow pointing in direction of CSF flow path, aligning Locator with valve axis.
	**4.** Place Compass within Locator.
	**5.** Adjust Locator orientation, in same horizontal plane as valve, so that Compass needle centers within white target circle, and aligns with current operating pressure setting. Note the valve's current operating pressure setting.

	**6.** Without moving Locator, remove Compass, then insert Magnet, with center line of Magnet aligned with current operating pressure setting.
	**7.** Without moving Locator, quickly slide Magnet, with back and forth motion, along the current operating pressure setting axis. With Magnet again centered inside Locator, turn magnet slowly, just beyond the highest or lowest operating pressure setting, whichever is furthest from the initial operating pressure setting. Without moving Locator, remove Magnet vertically, and place Magnet 0.5 meters away from valve, then insert Compass into Locator. If Locator orientation is accurate, Compass needle aligns exactly with the highest or lowest operating pressure setting, providing a reference point for calibration of the Locator along the valve's axis. If the Compass needle does not align exactly with the highest or lowest operating pressure setting, re-calibrate Locator, by turning it slightly, in same plane as valve, until the Compass needle does align exactly with the highest or lowest operating pressure setting.
	**8.** Without moving Locator, remove Compass, then re-insert Magnet, with center line of Magnet aligned with current (highest or lowest) operating pressure setting. Without moving Locator, quickly slide Magnet, with back and forth motion, along the current operating pressure setting axis, and, with Magnet once again centered inside Locator, turn Magnet slowly to new operating pressure setting.

	**9.** Without moving Locator, remove Magnet vertically, and place Magnet 0.5 meters away from valve.
	**10.** Without moving Locator, re-insert Compass, confirming that needle is again centered within white target circle, and aligns with new op

The safety of adjustable valves has become a major concern for neurosurgeons because of the growing use of electromagnetic devices in daily life and the development of high power MRI (3 teslas).
Indeed, these devices are liable to modify the selected pressure accidentally, with the risk of disrupting CSF drainage and causing serious complications for the patient. The Polaris® valve is a major breakthrough for the safety of patients fitted with adjustable valves.
Its exclusive locking mechanism enables it to resist: Direct knocks to the valve; Everyday magnetic fields; Magnetic Resonance Imaging (MRI), up to 3 teslas. It offers the patient an unequalled security against the clinical risks associated with pressure dysadjustments.

I - Features and benefits of the Polaris valve:		



II - Focus on the Polaris® Magnetic Lock:

The Polaris® Magnetic Lock is based on the permanent reciprocal attraction of two mobile micro-magnets of opposite polarity.
This “magnetic lock” holds the rotor in the selected position, thus preventing any accidental change in operating pressure if the valve is exposed to magnetic fields.
In fact, in the presence of a standard magnetic field (unidirectional) the two micro-magnets are attracted in the same direction.
So only one of the two magnets moves in the direction of the field, while the other remains locked.
Changing the operating pressure of the valve first requires the simultaneous unlocking of the two micro-magnets in the valve by a specific magnetic key. The rotor can then turn freely on its central axis.



III - Focus on the Direct Pressure Reading:

Direct pressure reading is obtained using the adjustment kit compass: the compass needle is aligned with the position of the magnetic rotor.



IV - Focus on the Unique Special Pressure Range

In addition to the standard model (30-200 mmH2O), Polaris® also offers a UNIQUE SPECIAL PRESSURE RANGE: one low pressure valve (10-140 mmH2O) and two high pressure valves (50-300 and 80-400 mmH2O). Thus a choice is provided, depending on the experience of the practitioner, to meet very specific clinical needs.

Position Operating Pressure (mm H2O) SPV SPV-140 SPV-300 SPV-400 1 30 10 50 80 2 70 40 100 150 3 110 80 150 230 4 150 110 220 330 5 200 140 300 400

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