

**OSV·II** >

INTEGRA  
**NPH** >  
low flow valve

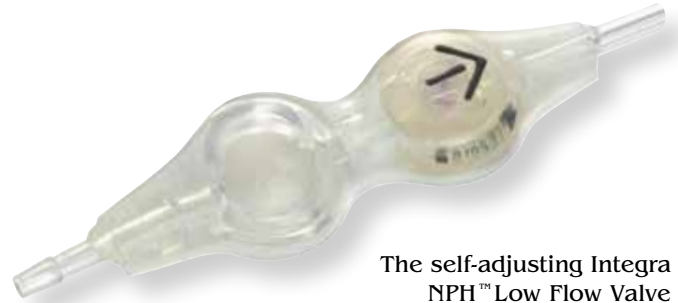
**The next-generation valves  
for the generations who  
need it most.**

 **INTEGRA**<sup>™</sup>  
NeuroSciences

# The only self-adjusting valves that address all your patients' CSF flow requirements.



The self-adjusting  
Integra OSV II®



The self-adjusting Integra  
NPH™ Low Flow Valve

## Automatic regulation. Without programming or adjustments.

For reliable, automatic CSF management without the need for programming, pressure selection, or manual adjustments, the solution is the self-adjusting technology featured in the Integra NPH and OSV II Valve Systems. Next generation OSV technology maintains physiological ICP and flow rates to automatically adjust to a patient's changing needs.

Its unique, three-stage design enables surgeons to effectively manage both postural and vasogenic overdrainage with greater convenience and fewer complications. Additionally, the OSV II valve system contains no ferromagnetic parts and is safe to use with diagnostic procedures, such as MRI and CT scans. Conversely, programmable valves in the presence of strong magnetic fields—including MRI—may unpredictably readjust or alter flow rates.<sup>1,2</sup>

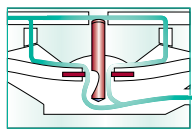
With conventional valve systems, common complications such as overdrainage leave patients continually *adjusting* their lives around their shunt system. With OSV II and Integra NPH, the valve system is continually *adjusting* to them.

**"The OSV II valve's long-term stability, a 62% overall shunt survival rate at 5 years follow-up and low incidence of chronic overdrainage, led us to conclude that flow-regulating shunts can offer numerous clinical advantages over other valve technologies."<sup>3</sup>**

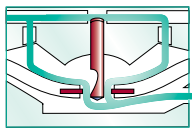
**-Patrick W. Hanlo, M.D. PhD.**

## Designed to regulate flow at normal CSF production rate of 18-30 ml/hr.

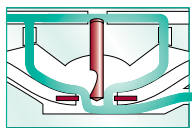
- Self adjusting OSV II Valve System utilizes advanced technology to maintain physiological ICP by automatically adjusting to your patients' needs.
- Incorporates benefits of a low opening pressure without the risk of overdrainage.
- Three stage design enables superior management of both postural and vasogenic overdrainage.
- Contains no magnetic parts and is safe to use with diagnostic procedures, including MRI and CT scans.



**Stage I - Low Differential Pressure**  
Begins when DP reaches 30-80 mm H<sub>2</sub>O. The flow rate will be 5 ml/hr. Remains in Stage I with flow rates up to 18 ml/hr (DP will be between 40 and 120 mm H<sub>2</sub>O).

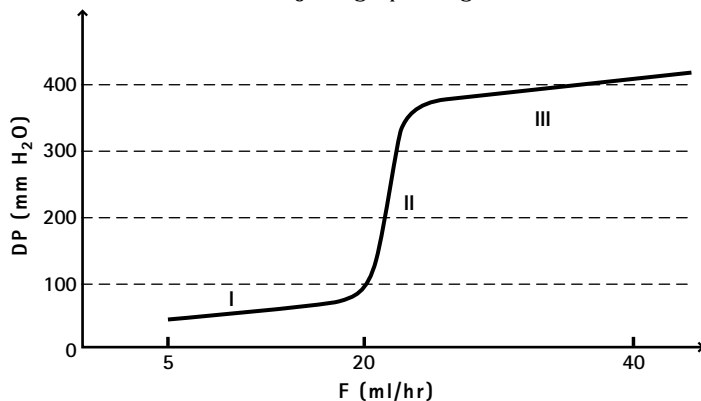


**Stage II - Flow Regulation**  
When DP increases, the valve operates as a variable-resistance flow regulator. At DP ranges between 120 and 300 mm H<sub>2</sub>O, it restricts flow between 18 and 30 ml/hr.



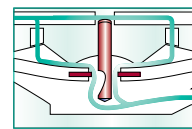
**Stage III - Pressure Relief Mode**  
Should intraventricular pressure (IVP) abruptly elevate, the rapid flow rate mode engages to facilitate IVP normalization. The valve then reverts to Stage II or I, depending upon conditions.

OSV II Self-Adjusting Operating Characteristics

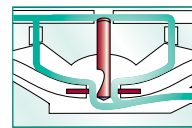


## Designed for patients who require a reduced drainage rate of 8-17 ml/hr.

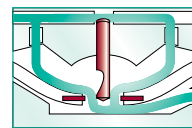
- Self adjusting Integra NPH Valve System is physiologically designed to meet the special needs of patients requiring a lower flow rate.
- Only self-adjusting valve that provides a CSF flow-regulation rate of approximately 12 ml/hr, since CSF production decreases as part of healthy aging.<sup>4</sup>
- Contains no magnetic parts and is safe to use with diagnostic procedures, including MRI and CT scans.



**Stage I - Low Differential Pressure**  
Begins when DP reaches 30-80 mm H<sub>2</sub>O. The flow rate will be 5 ml/hr. Remains in Stage I with flow rates up to 8 ml/hr (DP will be between 40 and 120 mm H<sub>2</sub>O).

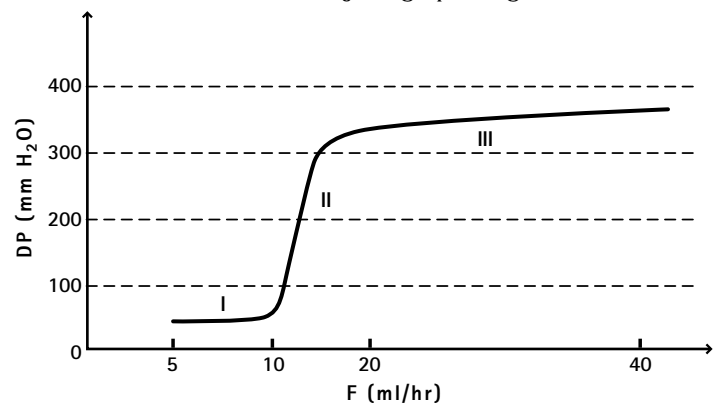


**Stage II - Flow Regulation**  
When DP increases, the valve operates as a variable resistance flow regulator. At DP ranges between 120 and 300 mm H<sub>2</sub>O, it restricts flow between 8 and 17 ml/hr.



**Stage III - Pressure Relief Mode**  
Should intraventricular pressure (IVP) abruptly elevate, the rapid flow rate mode engages to facilitate IVP normalization. The valve then reverts to Stage II or I, depending upon conditions.

NPH Low Flow Self-Adjusting Operating Characteristics



# ORDERING INFORMATION

## ONE PIECE SYSTEM

Includes: Valve, 110cm Open-ended Striped Peritoneal Catheter, Right Angle Guide, Straight Polypropylene Connector, Ventricular Catheter Introducer, and Luer Connector

### Integra NPH Low Flow Valve

| Product Number | Antechamber | Product Details                    |
|----------------|-------------|------------------------------------|
| 909518         | Yes         | Integral 7 cm Ventricular Catheter |
| 909519         | No          | Integral 7 cm Ventricular Catheter |
| 909506         | Yes         | Integral 9cm Ventricular Catheter  |
| 909505         | No          | Integral 9cm Ventricular Catheter  |
| 909504         | Yes         | Integral 13cm Ventricular Catheter |

### OSVII

| Product Number | Antechamber | Product Details            |
|----------------|-------------|----------------------------|
| 909718         | Yes         | 7 cm Ventricular Catheter  |
| 909719         | No          | 7 cm Ventricular Catheter  |
| 909704         | Yes         | 13 cm Ventricular Catheter |
| 909705         | No          | 9 cm Ventricular Catheter  |
| 909706         | Yes         | 9 cm Ventricular Catheter  |

## BURR HOLE SYSTEM

Includes: 6.4mm Integral Burr Hole Cap, 110cm Open-ended Striped Drainage Catheter, Straight Polypropylene Connector, Regular and Shallow Polypropylene Burr Hole Reservoirs, and Luer Connectors

### Integra NPH Low Flow Valve

| Product Number | Antechamber | Product Details   |
|----------------|-------------|---|
| 909520         | No          | 15 cm Full Barium Ventricular Catheter with Radiopaque Dots     |
| 909521         | Yes         | 15 cm Full Barium Ventricular Catheter with Radiopaque Dots     |
| 90S521         | Yes         | 15 cm Barium Striped Ventricular Catheter with Numbered Markers |

### OSVII

| Product Number | Antechamber | Product Details   |
|----------------|-------------|---|
| 909721         | Yes         | 15 cm Full Barium Ventricular Catheter with Radiopaque Dots     |
| 909720         | No          | 15 cm Full Barium Ventricular Catheter with Radiopaque Dots     |
| 90S721         | Yes         | 15 cm Barium Striped Ventricular Catheter with Numbered Markers |

## TWO PIECE SYSTEM

Includes: Valve, Integral 110cm Open-ended Striped Peritoneal Catheter, Right Angle Guide, Straight Polypropylene Connector, and Luer Connector

### Integra NPH Low Flow Valve

| Product Number | Antechamber | Product Details                              |
|----------------|-------------|--|
| 909512         | Yes         | 15 cm Ventricular Catheter                   |
| 909513         | No          | 15 cm Ventricular Catheter                   |
| 909514         | Yes         | 15 cm Ventricular Catheter and 65cm Tunneler |
| 909515         | No          | 15 cm Ventricular Catheter and 65cm Tunneler |
| 909507         | Yes         | Malleable 65cm Tunneler                      |
| 909508         | No          | Malleable 65cm Tunneler                      |
| 909507S        | Yes         | Nothing Included                             |
| 909508S        | No          | Nothing Included                             |

### OSV II

| Product Number | Antechamber | Product Details  |
|----------------|-------------|--|
| 909712         | Yes         | 15 cm Straight Ventricular Catheter, Radiopaque dots, Introducing Rod, & Right Angle Guide |
| 909713         | No          | 15 cm Straight Ventricular Catheter, Radiopaque dots, Introducing Rod, & Right Angle Guide |
| 909707         | Yes         | 65 cm Malleable tunneler, No Ventricular Catheter  |
| 909708         | No          | 65 cm Malleable tunneler, No Ventricular Catheter  |
| 909707S        | Yes         | No Ventricular Catheter or Tunneler  |
| 909708S        | No          | No Ventricular Catheter or Tunneler  |

## INDIVIDUAL UNITS

### Integra NPH Low Flow Valve

| Product Number | Antechamber | Product Details  |
|----------------|-------------|--|
| 909500         | Yes         | Valve with Integral Polysulfone Connectors, Luer Connector, Priming Tubing |
| 909501         | No          | Valve with Integral Polysulfone Connectors, Luer Connector, Priming Tubing |

### OSV II

| Product Number | Antechamber | Product Details  |
|----------------|-------------|--|
| 909700         | Yes         | Valve with Integral Polysulfone Connectors, Luer Connector, Priming Tubing |
| 909701         | No          | Valve with Integral Polysulfone Connectors, Luer Connector, Priming Tubing |

## INDIVIDUAL COMPONENTS

| Product Number | Antechamber | Product Details   |
|----------------|-------------|---|
| 9MD102A        | N/A         | 15 cm Full Barium Ventricular Catheter with Radiopaque Dots     |
| 9MD102B        | N/A         | 15 cm Barium Striped Ventricular Catheter with Numbered Markers |
| 9MZ1011        | N/A         | 110 cm Open-Ended, Striped, Peritoneal Catheter                 |
| 991002         | N/A         | Right Angle Guide (box/5)                                       |



OPERATE WITH CONFIDENCE™



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888.980.7742 (Fax)

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- Miwa K, Kondo H, Sakai N. Pressure changes observed in Codman-Medos programmable valves following magnetic exposure and flipping. Childs Nerv Syst. 2001 Feb;17(3):150-3.
- Schneider T, Knauff U, Nitsch J, Firsching R. Electromagnetic field hazards involving adjustable shunt valves in hydrocephalus. J Neurosurg. 2002 Feb;96(2):331-4.
- Hanlo et al. Treatment of hydrocephalus determined by the European Orbis Sigma Valve II survey: a multicenter prospective 5-year shunt survival study in children and adults in whom a flow-regulating shunt was used. Journal of Neurosurgery 2003 Jul;99(1):52-7.
- May C, et al. Cerebrospinal fluid production is reduced in healthy aging. Neurology 1990 March;40:500-503.

#### INDICATIONS:

The Integra NPH™ Low Flow Valve is an implantable system used in the treatment of patients with hydrocephalus, to shunt CSF from the ventricles to the peritoneal cavity or other appropriate drainage site such as the heart's right atrium.

The OSV II® System is an implantable system used in the treatment of patients with hydrocephalus, to shunt CSF from the ventricles to the peritoneal cavity or other appropriate drainage site such as the heart's right atrium.

**Rx ONLY**