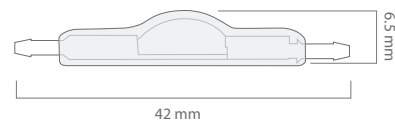
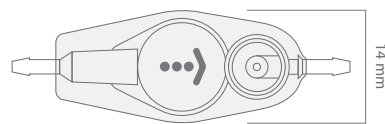


STANDARD MODEL Separated components	PRESSURE	CONTENT	UNISHUNT MODEL Peritoneal catheter pre assembled to valve
ADE 10215	Extra Low	01 Hydrocephalus Valve Adult size 01 Straight Ventricular Cerebral Catheter 15 cm with stainless steel guide 01 Peritoneal Catheter 102 cm 01 90° Angle Former; 01 irrigation tubing	UADE 10215
ADB 10215	Low		UADB 10215
ADM10215	Medium		UADM10215
ADA 10215	High		UADA 10215
ADE 10223	Extra Low	01 Hydrocephalus Valve Adult size 01 Straight Ventricular Cerebral Catheter 23,5 cm with stainless steel guide 01 Peritoneal Catheter 102 cm 01 90° Angle Former; 01 irrigation tubing	UADE 10223
ADB 10223	Low		UADB 10223
ADM10223	Medium		UADM10223
ADA 10223	High		UADA 10223
ADE 12015	Extra Low	01 Hydrocephalus Valve Adult size 01 Straight Ventricular Cerebral Catheter 15 cm with stainless steel guide 01 Peritoneal Catheter 120 cm 01 90° Angle Former; 01 irrigation tubing	UADE 12015
ADB 12015	Low		UADB 12015
ADM12015	Medium		UADM12015
ADA 12015	High		UADA 12015
ADE 12023	Extra Low	01 Hydrocephalus Valve Adult size 01 Straight Ventricular Cerebral Catheter 23,5 cm with stainless steel guide 01 Peritoneal Catheter 120 cm 01 90° Angle Former; 01 irrigation tubing	UADE 12023
ADB 12023	Low		UADB 12023
ADM12023	Medium		UADM12023
ADA 12023	High		UADA 12023
UNITIZED MODEL Peritoneal and ventricular catheter pre assembled to valve	PRESSURE	CONTENT	
UNADE 10213	Extra Low	01 Hydrocephalus Valve Adult size pre-assembled to 01 Straight Ventricular Cerebral Catheter 13,5 cm and 01 Peritoneal Catheter 102 cm; 01 90° Angle Former; 01 stainless steel guide; 01 irrigation tubing; 01 connector for irrigation	
UNADB 10213	Low		
UNADM10213	Medium		
UNADA 10213	High		
VALVE	PRESSURE	CONTENT	
SVAE	Extra Low	01 Hydrocephalus Valve Adult size	
SVAB	Low		
SVAM	Medium		
SVAA	High		



MARKS		
Pressure	Marks	Values (Flow of 21ml/h)
Extra low	○ ○ ○ >	1 to 3 cm of H <sub>2</sub> O
Low	● ○ ○ >	3 to 7 cm of H <sub>2</sub> O
Medium	● ● ○ >	7 to 11 cm of H <sub>2</sub> O
High	● ● ● >	11 to 14 cm of H <sub>2</sub> O

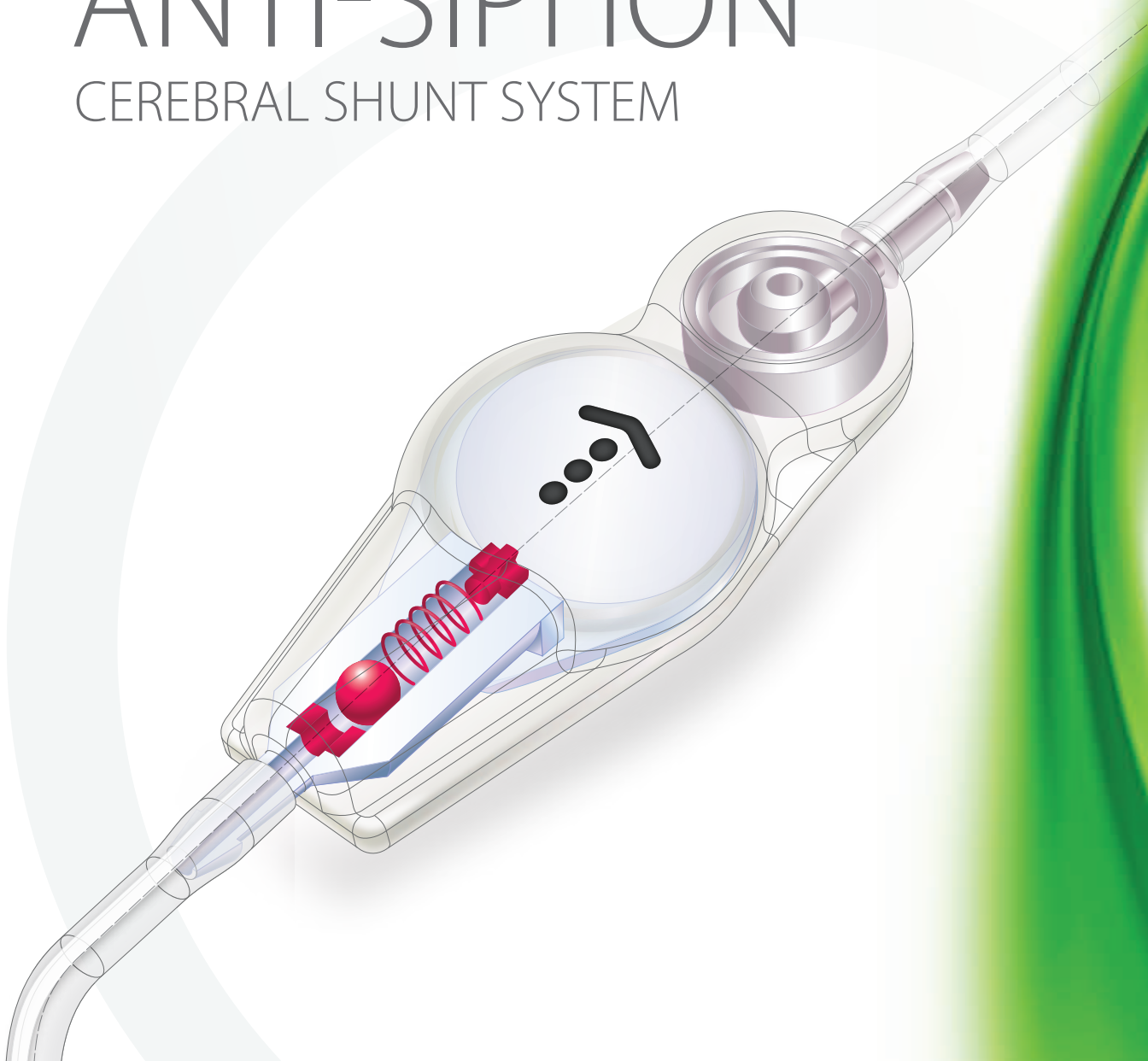
The technical information for these products is not limited to the characteristics presented in this catalog.  
For complete information, request the Instructions for Use at [info@hpbio.com.br](mailto:info@hpbio.com.br)



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# SPHERA ANTI-SIPHON CEREBRAL SHUNT SYSTEM



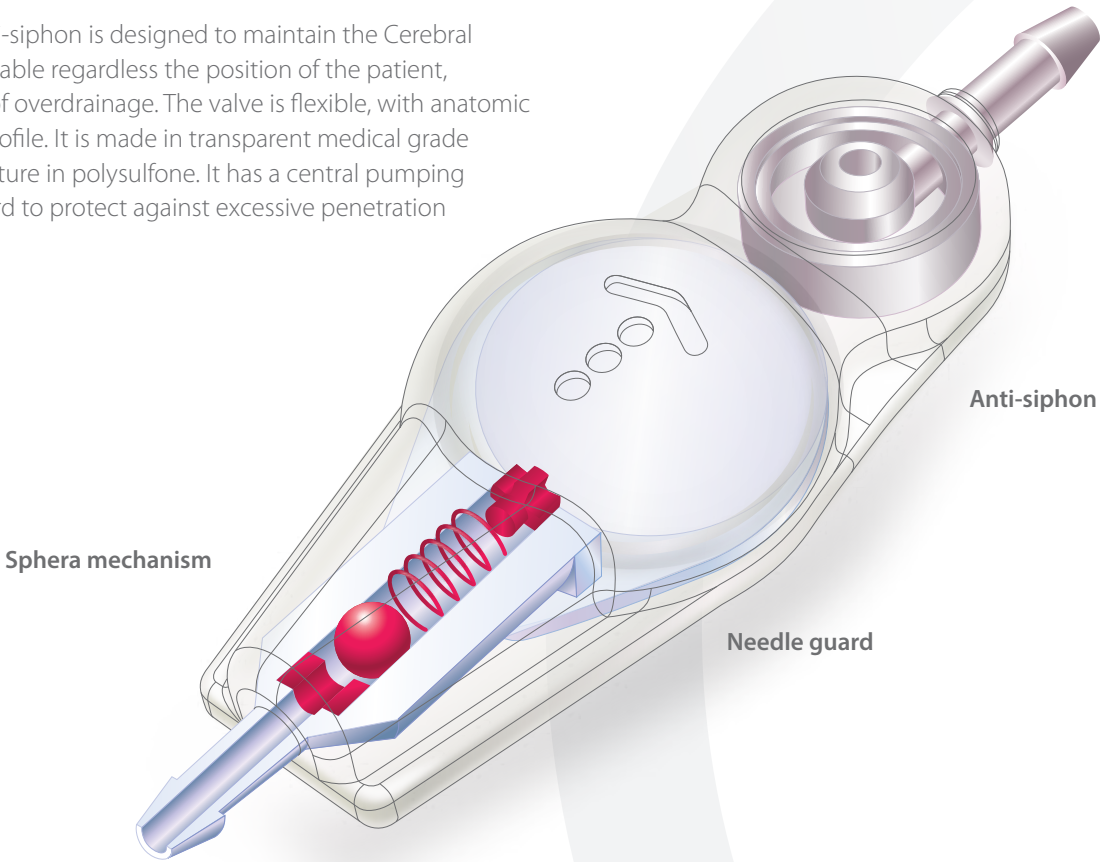
# SPHERA ANTI-SIPHON

## CEREBRAL SHUNT SYSTEM



### SPHERA ANTI-SIPHON CEREBRAL SHUNT SYSTEM

The Sphera Valve with Anti-siphon is designed to maintain the Cerebral Intraventricular pressure stable regardless the position of the patient, reducing the occurrence of overdrainage. The valve is flexible, with anatomic design and low implant profile. It is made in transparent medical grade silicone with internal structure in polysulfone. It has a central pumping chamber with needle guard to protect against excessive penetration during puncture.



### SPHERA MECHANISM: PRECISE PERFORMANCE

The pressure control system is encased in the input connector. The mechanism is composed of ruby ball, stainless steel spring and conic seat. The perfect match between ball and seat can safely set the opening and closing pressure of the system, providing precise control of intracranial pressure.

The valve is provided in four pressure ranges: high, medium, low and extra low to meet individual needs of patients. The input connector, manufactured in polysulfone, has radiopaque markings of flow and pressure that allows viewing in x-ray image.

### CATETERS: FLEXIBILITY AND RADIOCAPACITY

The valve is supplied with a cerebral ventricular catheter and a peritoneal catheter. These are made of soft transparent medical grade silicone with radiopaque fillet, which allows the viewing of catheters in x-ray image. The hardness of the silicone used in the manufacture of catheters was tailored to allow adequate flexibility and at the same time to prevent the occurrence of unwanted kink in the subcutaneous route, which can cause obstruction or decrease of drainage flow.

The standard model comes with a straight ventricular catheter 15 or 23.5cm length with 90° Angle former, and the peritoneal catheter with 102 or 120cm length, but may be replaced by different configurations as needed (see list of components for hpbio shunts).

### ANTI-SIPHON MECHANISM: AVOIDING OVERDRAINAGE

Encased in the output connector, the mechanism prevents ventricular overdrainage caused by siphoning in the distal catheter when the patient moves from horizontal to vertical position.

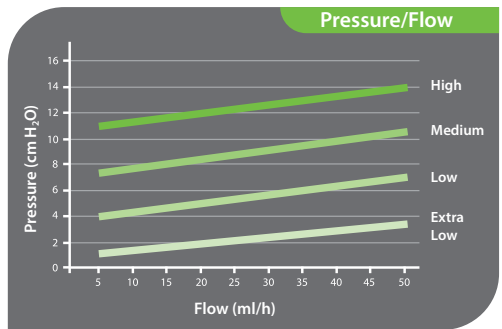
The mechanism is composed of a flexible silicone membrane that when attracted by the negative pressure of the distal catheter prevents or reduces the flow of excessive fluid (fig.2). When the patient is upright, the combination of the mechanisms

Anti-siphon and Sphera provides the dynamic balance of the system, keeping the valve operating on a stable flow/pressure rate.

When the patient returns to the horizontal position, the Anti-siphon system stops to interfere in the control of flow and the valve returns to work in the initial condition (Fig.1).

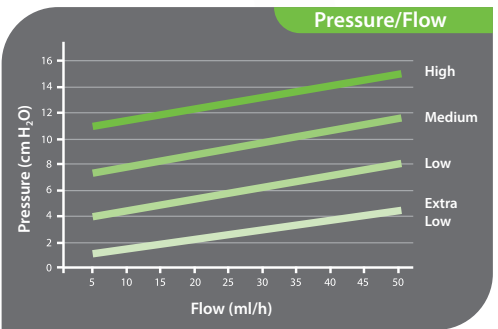
The bands in Graphic 1 and 2 represent the range where the pressure curve operates when submitted to a progressive increasing flow from 5 to 50 ml/hour. These results were obtained in "in vitro" tests.

Horizontal Position (0 cm H<sub>2</sub>O)



Graphic 1

Vertical Position (-50 cm H<sub>2</sub>O)



Graphic 2

The graphic represents average rates. Consider a range of  $\pm 1.5$  cm H<sub>2</sub>O.

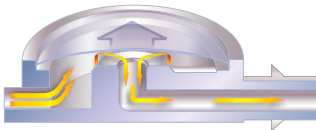


Fig. 1

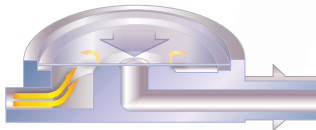
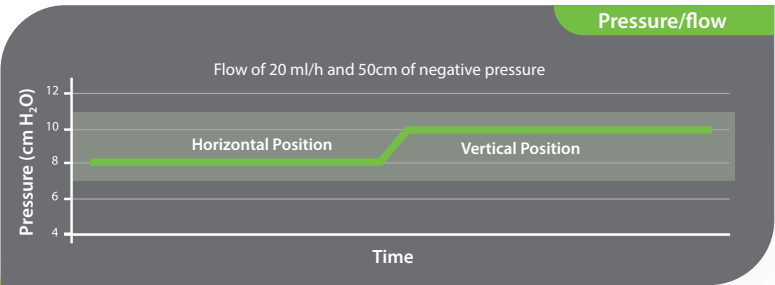


Fig. 2



Graphic 3

The graphic represents a valve operating within a range of medium pressure (7 to 11 cm H<sub>2</sub>O), initially with the patient in a horizontal position and the upright.