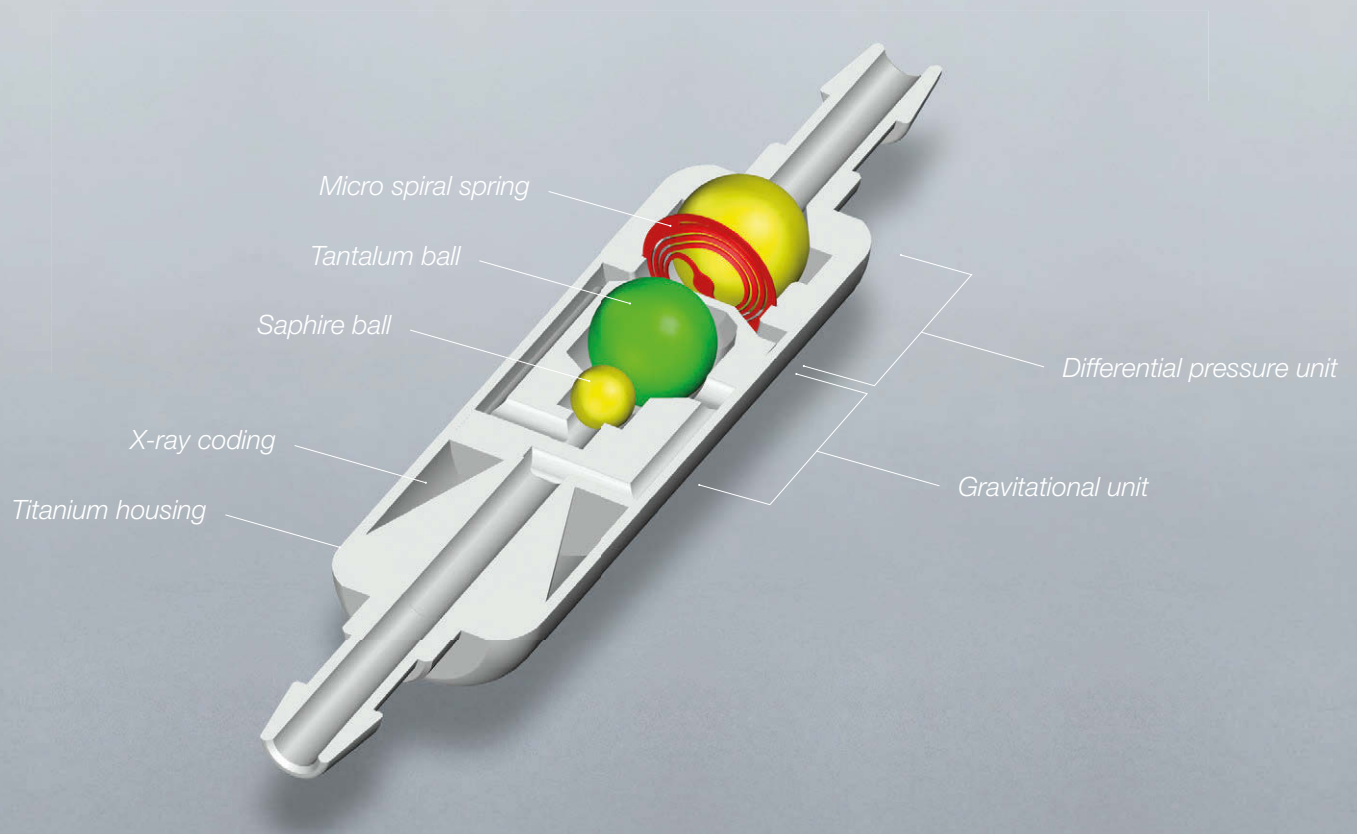




GAV[®] 2.0

GRAVITATIONAL VALVE FOR
TREATMENT OF HYDROCEPHALUS

Valve properties



Gravitation technology

The combination of a differential pressure unit and gravitational unit ensures an automatic opening pressure adjustment as a function of the position of the patient's body and in that way counteracts complications due to excess drainage.

Pressure level concept for newborns to seniors

The 6 offered pressure level versions cover the entire patient spectrum from newborns to seniors.

Design

The slender cylindrical design allows for quick and easy implantation in children as well as in adults.



Titanium

The valve material titanium assures high precision, durable reliability and biocompatibility. It prevents effectively external and subcutaneous pressure influences and is MRI compatible.

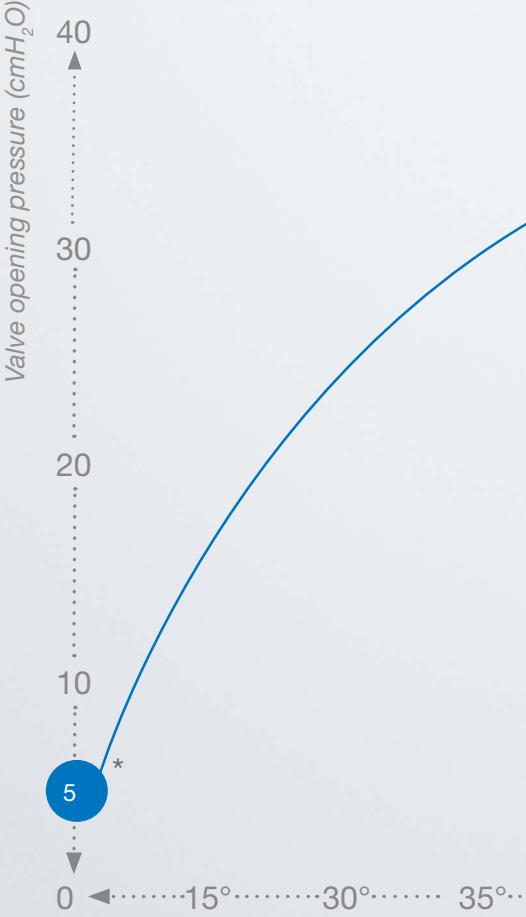
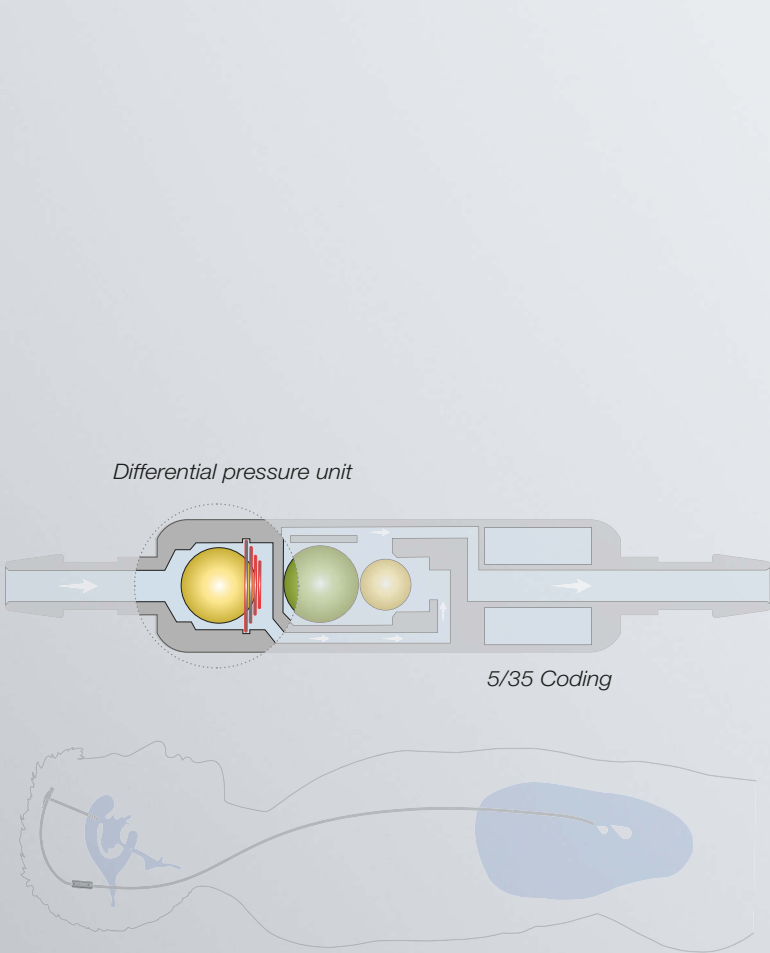
X-ray recognition

Due to the integrated novel pressure level coding, the selected pressure levels are clearly recognizable in the X-ray image postoperatively.

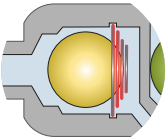
Two additional LP variants

GAV 2.0 is also suitable for lumbar peritoneal drainage due to two special variants.

Functionality



Horizontal position

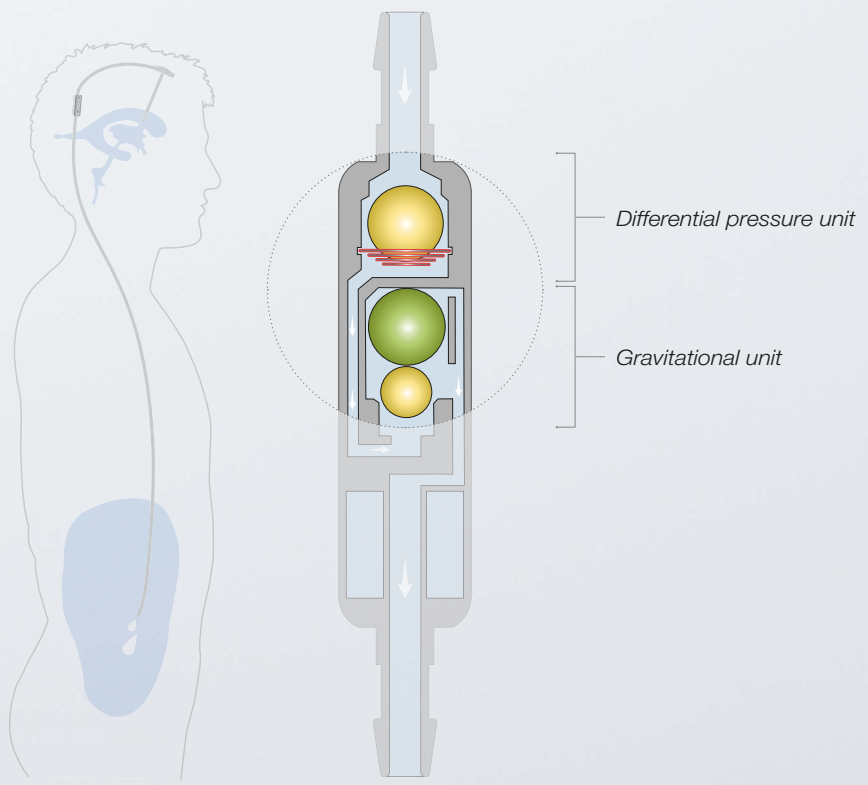


The valve opening pressure of GAV 2.0 in the lying position is solely determined by the micro spiral spring of the differential pressure unit. The gravitational unit is not active in this body position and is always open. If the patient's intraventricular pressure (IVP) exceeds the opening pressure of the micro spiral spring, the closure ball moves out of the cone, opening a gap for drainage purposes.

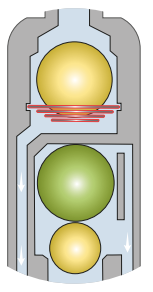
For the example, a differential pressure unit of 5 cmH₂O was selected.



The functionality of the GAV[®] 2.0 is illustrated interactively in the Miethke App.



Vertical position



In the vertical position of the body, the gravitational and differential pressure units act in conjunction. When the patient stands up, the tantalum ball (green) in the gravitational unit is activated, causing gravity to increase the valve opening pressure. Now, the weight of the tantalum ball (opening pressure of the gravitational unit) must be overcome in addition to the opening pressure of the differential pressure unit. Only when the sum of intraventricular pressure (IVP) and hydrostatic pressure exceeds the opening pressure of both units, drainage can take place again. The opening pressure in the upright position of the patient is therefore computed from the sum of the differential pressure and gravitational pressure.

For the example, a gravitational unit having 30 cmH₂O was selected. The total opening pressure in the upright position thus adds up to 35 cmH₂O.

* Example for GAV® 2.0 5 / 35

X-ray recognition and pressure level recommendation

Lying	Upright	X-ray coding	Radiograph
5 cmH ₂ O	20 cmH ₂ O		
5 cmH ₂ O	25 cmH ₂ O		
5 cmH ₂ O	30 cmH ₂ O		
5 cmH ₂ O	35 cmH ₂ O		
10 cmH ₂ O	25 cmH ₂ O		
10 cmH ₂ O	30 cmH ₂ O		

X-ray recognition

Due to the integrated pressure level coding, the selected pressure levels are clearly recognizable in the X-ray image postoperatively.



The X-ray recognisability of the GAV[®] 2.0 is illustrated in the Miethke App.

Newborns	Children 6 months and older	Children 3 years and older	Adults	Adults 65 years and older
5 / 25 *	10 / 25 *	10 / 30 *	5 / 30 *	5 / 25 *
			5 / 25 * < 1.60 m	5 / 20 * < 1.60 m
			5 / 35 * > 1.80 m	5 / 30 * > 1.80 m

* Recommended pressure level in cmH_2O .

This is a non-binding recommendation. The doctor will decide each case on an individual basis.

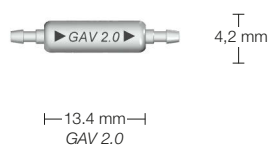
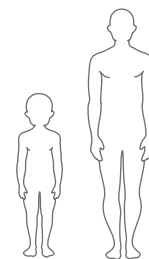
Pressure level recommendation

The choice of the appropriate pressure level of *GAV 2.0* depends on several other factors, including age, degree of activity, size and stature of the patient.

The values given apply to mobile patients. For patients with little mobility or a high BMI, the gravitational unit should be chosen lower than recommended here.

GAV[®]2.0

· GAV 2.0 valve



Valve: $d_o = 4.2$ mm
 Connector: $d_o = 1.9$ mm
 preferably to be used with
 Catheter: $d_i = 1.2$ mm,
 $d_o = 2.5$ mm

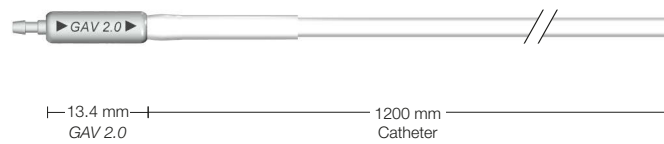
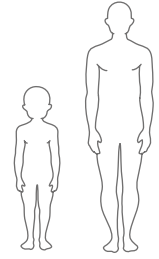
Scale 1:1

Art. No.	Lying	Upright
FX210T	5 cmH ₂ O	20 cmH ₂ O
FX211T	5 cmH ₂ O	25 cmH ₂ O
FX212T	5 cmH ₂ O	30 cmH ₂ O
FX213T	5 cmH ₂ O	35 cmH ₂ O
FX214T	10 cmH ₂ O	25 cmH ₂ O
FX215T	10 cmH ₂ O	30 cmH ₂ O

For pressure level recommendation see page 7.

GAV[®]2.0 with catheter

· GAV 2.0 valve with distal catheter (1200 mm)



Scale 1:1

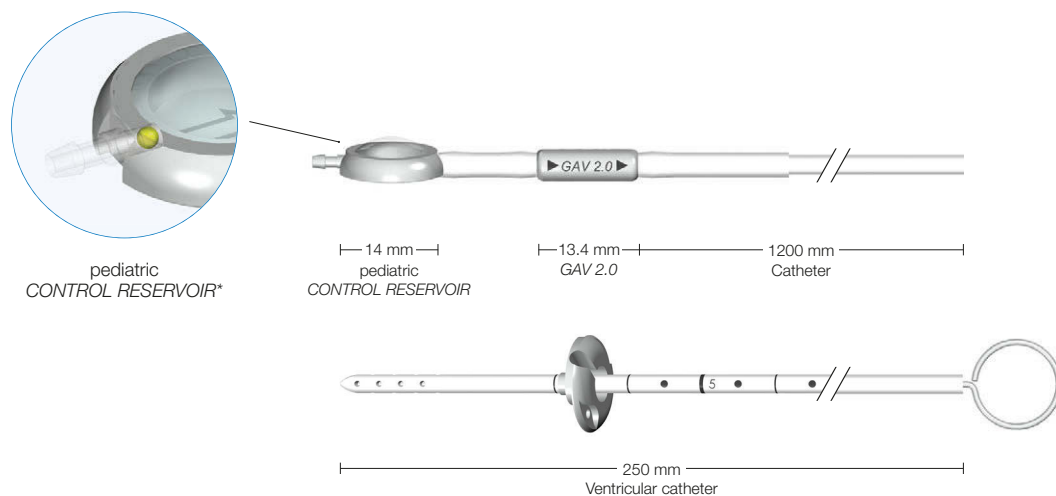
Art. No.	Lying	Upright
FX216T	5 cmH ₂ O	20 cmH ₂ O
FX217T	5 cmH ₂ O	25 cmH ₂ O
FX218T	5 cmH ₂ O	30 cmH ₂ O
FX219T	5 cmH ₂ O	35 cmH ₂ O
FX220T	10 cmH ₂ O	25 cmH ₂ O
FX221T	10 cmH ₂ O	30 cmH ₂ O

For pressure level recommendation see page 7.

GAV[®]2.0 Shunt System with pediatric CONTROL RESERVOIR

- GAV 2.0 valve with integrated pediatric CONTROL RESERVOIR* and distal catheter (1200 mm)
- Ventricular catheter with pediatric deflector and introducing stylet (250 mm)

* An additional valve in the base of the pediatric CONTROL RESERVOIR makes it possible to flush the fluid only in the distal direction. This feature allows for controlling the patency of the ventricular catheter and the distal drainage.



Scale 1:1

Art. No.	Lying	Upright
FX152T	5 cmH ₂ O	20 cmH ₂ O
FX153T	5 cmH ₂ O	25 cmH ₂ O
FX154T	5 cmH ₂ O	30 cmH ₂ O
FX155T	5 cmH ₂ O	35 cmH ₂ O
FX156T	10 cmH ₂ O	25 cmH ₂ O
FX157T	10 cmH ₂ O	30 cmH ₂ O

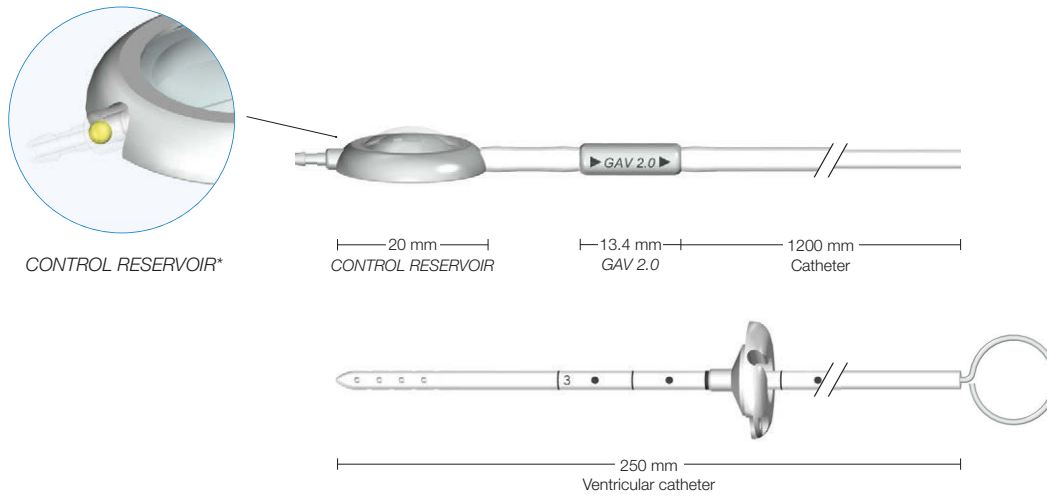
For pressure level recommendation see page 7.

GAV[®]2.0 Shunt System with CONTROL RESERVOIR



- GAV 2.0 valve with integrated CONTROL RESERVOIR* and distal catheter (1200 mm)
- Ventricular catheter with deflector and introducing stylet (250 mm)

* An additional valve in the base of the CONTROL RESERVOIR makes it possible to flush the fluid only in the distal direction. This feature allows for controlling the patency of the ventricular catheter and the distal drainage.



Scale 1:1

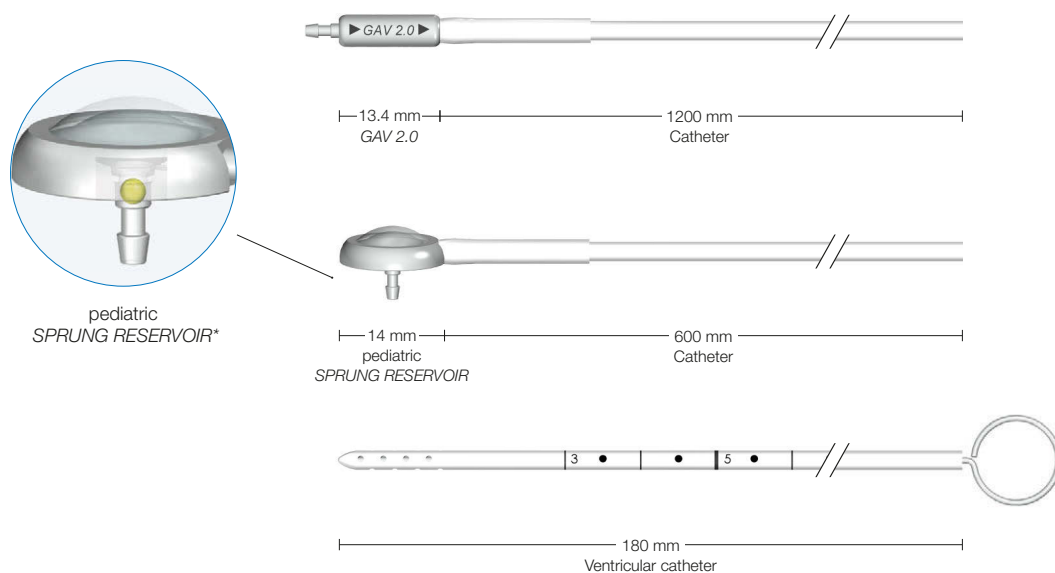
Art. No.	Lying	Upright
FX146T	5 cmH ₂ O	20 cmH ₂ O
FX147T	5 cmH ₂ O	25 cmH ₂ O
FX148T	5 cmH ₂ O	30 cmH ₂ O
FX149T	5 cmH ₂ O	35 cmH ₂ O
FX150T	10 cmH ₂ O	25 cmH ₂ O
FX151T	10 cmH ₂ O	30 cmH ₂ O

For pressure level recommendation see page 7.

GAV[®]2.0 Shunt System with pediatric *SPRUNG RESERVOIR*

- GAV 2.0 valve with distal catheter (1200 mm)
- Pediatric *SPRUNG RESERVOIR** with distal catheter (600 mm)
- Ventricular catheter with introducing stylet (180 mm)

* An additional valve in the base of the pediatric *SPRUNG RESERVOIR* makes it possible to flush the fluid only in the distal direction. This feature allows for controlling the patency of the ventricular catheter and the distal drainage.



Scale 1:1

Art. No.	Lying	Upright
FX276T	5 cmH ₂ O	20 cmH ₂ O
FX277T	5 cmH ₂ O	25 cmH ₂ O
FX278T	5 cmH ₂ O	30 cmH ₂ O
FX279T	5 cmH ₂ O	35 cmH ₂ O
FX280T	10 cmH ₂ O	25 cmH ₂ O
FX281T	10 cmH ₂ O	30 cmH ₂ O

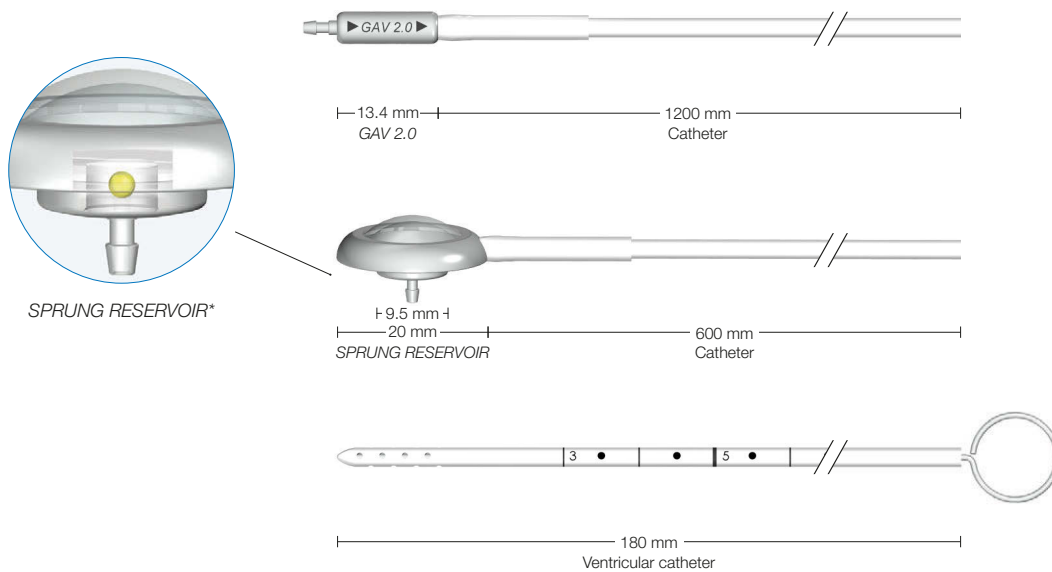
For pressure level recommendation see page 7.

GAV[®]2.0 Shunt System with *SPRUNG RESERVOIR*



- GAV 2.0 valve with distal catheter (1200 mm)
- *SPRUNG RESERVOIR** with distal catheter (600 mm)
- Ventricular catheter with introducing stylet (180 mm)

* An additional valve in the base of the *SPRUNG RESERVOIR* makes it possible to flush the fluid only in the distal direction. This feature allows for controlling the patency of the ventricular catheter and the distal drainage.



Scale 1:1

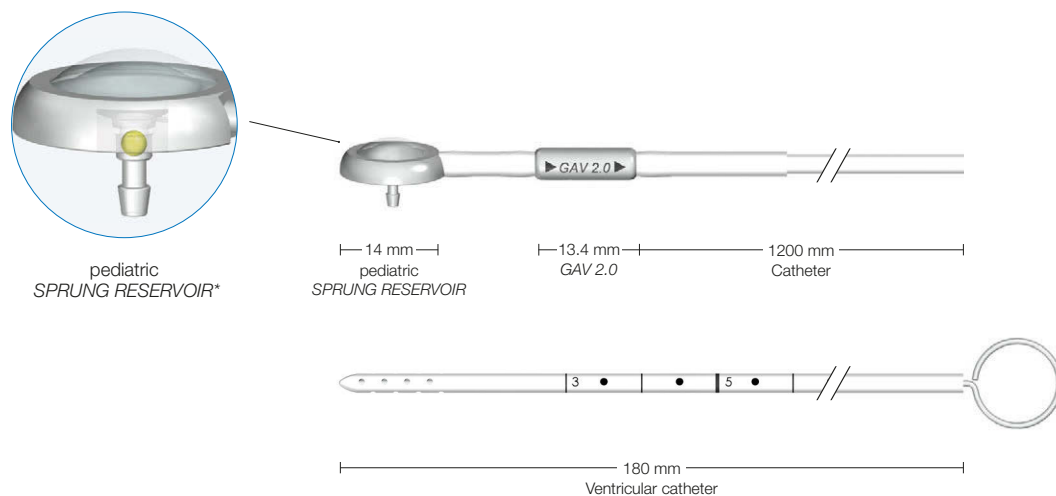
Art. No.	Lying	Upright
FX270T	5 cmH ₂ O	20 cmH ₂ O
FX271T	5 cmH ₂ O	25 cmH ₂ O
FX272T	5 cmH ₂ O	30 cmH ₂ O
FX273T	5 cmH ₂ O	35 cmH ₂ O
FX274T	10 cmH ₂ O	25 cmH ₂ O
FX275T	10 cmH ₂ O	30 cmH ₂ O

For pressure level recommendation see page 7.

GAV[®]2.0 Shunt System with pediatric *SPRUNG RESERVOIR*

- GAV 2.0 valve with integrated pediatric *SPRUNG RESERVOIR** and distal catheter (1200 mm)
- Ventricular catheter with introducing stylet (180 mm)

* An additional valve in the base of the pediatric *SPRUNG RESERVOIR* makes it possible to flush the fluid only in the distal direction. This feature allows for controlling the patency of the ventricular catheter and the distal drainage.



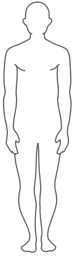
Only for occipital use

Scale 1:1

Art. No.	Lying	Upright
FX176T	5 cmH ₂ O	20 cmH ₂ O
FX177T	5 cmH ₂ O	25 cmH ₂ O
FX178T	5 cmH ₂ O	30 cmH ₂ O
FX179T	5 cmH ₂ O	35 cmH ₂ O
FX180T	10 cmH ₂ O	25 cmH ₂ O
FX181T	10 cmH ₂ O	30 cmH ₂ O

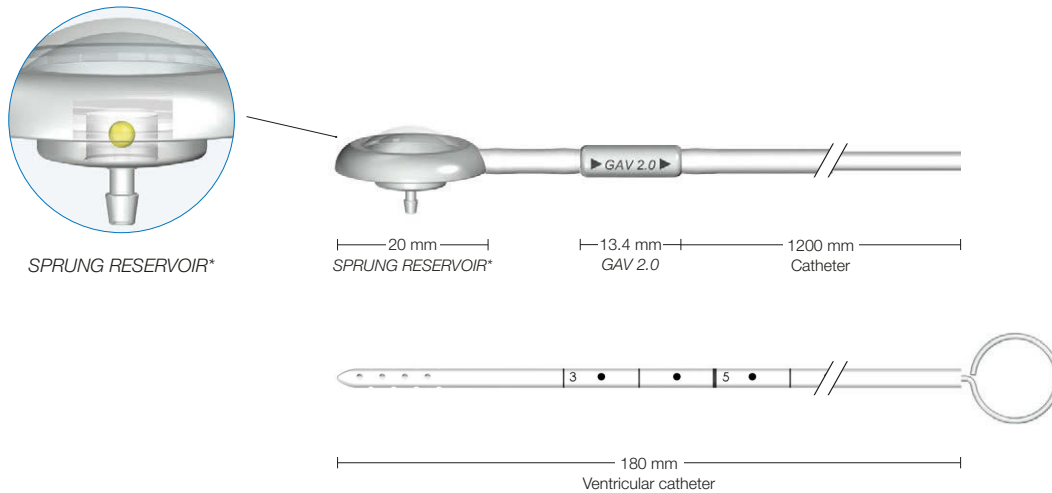
For pressure level recommendation see page 7.

GAV[®]2.0 Shunt System with *SPRUNG RESERVOIR*



- GAV 2.0 valve with integrated *SPRUNG RESERVOIR** and distal catheter (1200 mm)
- Ventricular catheter with introducing stylet (180 mm)

* An additional valve in the base of the *SPRUNG RESERVOIR* makes it possible to flush the fluid only in the distal direction. This feature allows for controlling the patency of the ventricular catheter and the distal drainage.



Only for occipital use

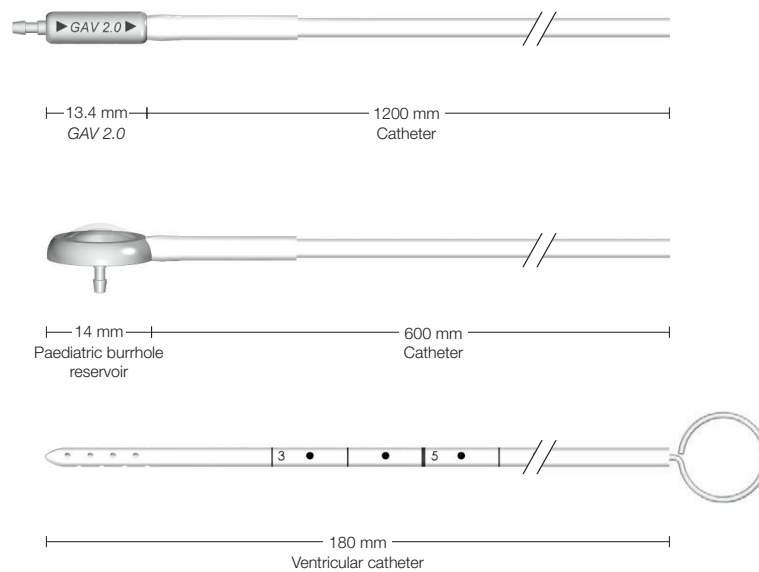
Scale 1:1

Art. No.	Lying	Upright
FX170T	5 cmH ₂ O	20 cmH ₂ O
FX171T	5 cmH ₂ O	25 cmH ₂ O
FX172T	5 cmH ₂ O	30 cmH ₂ O
FX173T	5 cmH ₂ O	35 cmH ₂ O
FX174T	10 cmH ₂ O	25 cmH ₂ O
FX175T	10 cmH ₂ O	30 cmH ₂ O

For pressure level recommendation see page 7.

GAV[®]2.0 Shunt System with pediatric burrhole reservoir

- GAV 2.0 valve with distal catheter (1200 mm)
- Pediatric burrhole reservoir with distal catheter (600 mm)
- Ventricular catheter with introducing stylet (180 mm)



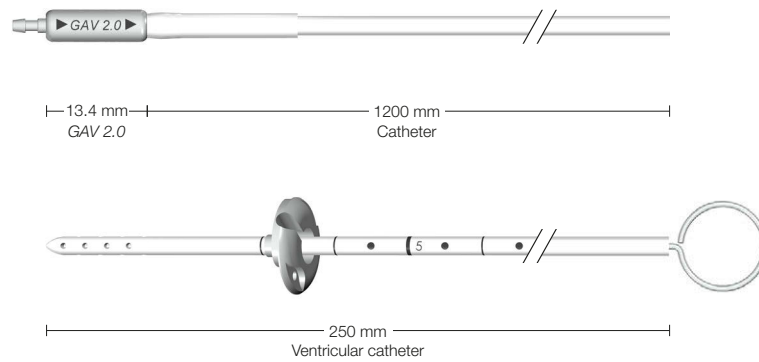
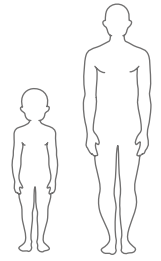
Scale 1:1

Art. No.	Lying	Upright
FX264T	5 cmH ₂ O	20 cmH ₂ O
FX265T	5 cmH ₂ O	25 cmH ₂ O
FX266T	5 cmH ₂ O	30 cmH ₂ O
FX267T	5 cmH ₂ O	35 cmH ₂ O
FX268T	10 cmH ₂ O	25 cmH ₂ O
FX269T	10 cmH ₂ O	30 cmH ₂ O

For pressure level recommendation see page 7.

GAV[®]2.0 Shunt System

- GAV 2.0 valve with distal catheter (1200 mm)
- Ventricular catheter with pediatric deflector and introducing stylet (250 mm)



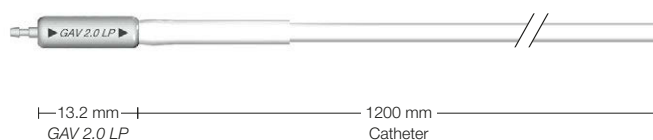
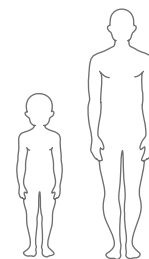
Scale 1:1

Art. No.	Lying	Upright
FX204T	5 cmH ₂ O	20 cmH ₂ O
FX205T	5 cmH ₂ O	25 cmH ₂ O
FX206T	5 cmH ₂ O	30 cmH ₂ O
FX207T	5 cmH ₂ O	35 cmH ₂ O
FX208T	10 cmH ₂ O	25 cmH ₂ O
FX209T	10 cmH ₂ O	30 cmH ₂ O

For pressure level recommendation see page 7.

GAV[®]2.0 LP

· GAV 2.0 LP valve (straight) with distal catheter (1200 mm)



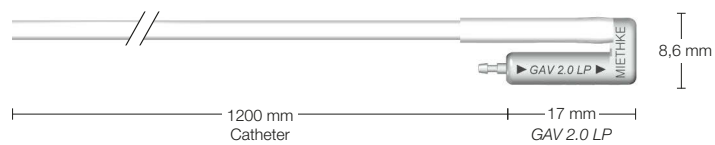
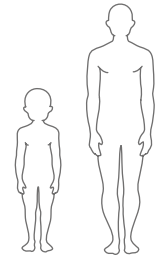
Scale 1:1

Art. No.	Lying	Upright
FX222T	5 cmH ₂ O	20 cmH ₂ O
FX223T	5 cmH ₂ O	25 cmH ₂ O
FX224T	5 cmH ₂ O	30 cmH ₂ O
FX225T	5 cmH ₂ O	35 cmH ₂ O
FX226T	10 cmH ₂ O	25 cmH ₂ O
FX227T	10 cmH ₂ O	30 cmH ₂ O

For pressure level recommendation see page 7.

GAV[®]2.0 LP

· GAV 2.0 LP valve (U-Form) with distal catheter (1200 mm)



Scale 1:1

Art. No.	Lying	Upright
FX228T	5 cmH ₂ O	20 cmH ₂ O
FX229T	5 cmH ₂ O	25 cmH ₂ O
FX230T	5 cmH ₂ O	30 cmH ₂ O
FX231T	5 cmH ₂ O	35 cmH ₂ O
FX232T	10 cmH ₂ O	25 cmH ₂ O
FX233T	10 cmH ₂ O	30 cmH ₂ O

For pressure level recommendation see page 7.



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