



M.flow[®]

**EXPAND FLEXIBILITY
AND MANAGE THE FLOW.**

WE UNDERSTAND
THE GRAVITY OF THE SITUATION



**TOGETHER FOR A BETTER LIFE
WITH HYDROCEPHALUS**

We have a long and intensive partnership with B. Braun in the field of neurosurgery. We are driven by a common vision: to improve the lives of hydrocephalus patients around the world with innovative solutions.

Our Strong Partner in Neurosurgery:

B | BRAUN
SHARING EXPERTISE

www.bbraun.com

"Our partnership with B. Braun has always been based on trust, expertise and mutual respect on an equal footing. This was already the case in 1999, when we began our joint journey with B. Braun as an innovative start-up. Today, this partnership also means friendship for us with so many long-standing companions worldwide."

Christoph Miethke, CEO and founder of Christoph Miethke GmbH & Co. KG.

OUR PARTNERSHIP WITH B. BRAUN

What connects us is an intensive and simultaneously a very special partnership with B. Braun.

Together we have been successfully selling MIETHKE products in more than 60 countries worldwide for many years.

Our cooperation is an exciting combination of B. Braun's almost 185 years of expertise as one of the world's leading medical technology companies and our agility as an innovative company and technology leader for gravity-based shunt technology. Above all, however, it is supported by a large number of colleagues, product experts and international contacts with a shared understanding of values.

We listen carefully to the voices of patients and neurosurgeons around the world and constantly question our own status quo. We passionately research, learn, develop and share our knowledge.



MARY, 22
"My hydrocephalus makes me grow."

TOGETHER FOR A BETTER LIFE WITH HYDROCEPHALUS

We share a common vision: to improve the lives of hydrocephalus patients around the world with innovative solutions. What drives us every day is our responsibility for people. With quality, responsibility, scientific and meticulous work, proximity, diversity and mutual respect, we want to meet this responsibility together and worldwide every day.

This is not just a promise but a self-conception of who we are.

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The idea for the development of *M.flow* originated – as it often does – through dialogue with patients and medical professionals. Hydrocephalus is as individual as the people affected. That is well known. Adjustable MIETHKE gravitational technology is the right answer for the vast majority of patients and can be flexibly and individually adapted to different requirements or changing life circumstances. Sometimes, however, medical professionals are faced with a complex and rare challenge that would seem to benefit from being able to manage the flow rate in the shunt system in addition to controlling and adjusting the opening pressure. Christoph Miethke couldn't let go of this idea.

Not an easy task. There were many possible solutions. A perfect opportunity for a master's thesis. Eric, at that time a student and now a development engineer with us, took on the task. Christoph and Eric finally combined the different approaches and balanced the disadvantages of one with the advantages of the other. The result was a successful master's thesis and the basic technical idea for the *M.flow*. With many prototypes, even more tests and countless conversations, Eric, Christoph and many other colleagues finally developed and optimised the *M.flow* and turned it into the product it is today.

„I felt a great deal of trust in myself from the very beginning. But also a great deal of responsibility, because it's always about the well-being of the patients“, says Eric today about the development of the *M.flow*.



The *M.flow* is an adjustable flow-reducing device that can be implanted in addition to gravitational or differential pressure valves.

With the *M.flow* it is possible to manage the flow resistance and thus the flow rate in the shunt system. The various flow-reduction levels can be used to influence the drainage volume and speed when the gravitational or differential pressure valve opens.

This allows hydrocephalus therapy to be individualised even further for complex cases. In addition, the *M.flow* offers a Real Off – a switch-off function that allows the flow in the shunt system to be completely stopped.

- + Expanded flexibility: minimum to maximum adjustable flow reduction.
- + Innovative shunt closure: Real Off Setting for an adjustable closure of the shunt system.
- + Pumping function: The *M.flow* allows distal pumping.
- + Protected against unintentional adjustment by means of exposure to magnets found in daily life.
- + The *M.flow* allows intuitive, secure and comfortable adjustment with proven adjustment technology.
- + MRI-compatible up to 3 Tesla: no X-ray control after MRI necessary, no additional radiation exposure for the patient.



Shown here: *M.flow* in combination mit *M.blue*

The flow reduction levels of the *M.flow* allow flexible control of the flow rate in the shunt system from 0 to 10. The length of the flow channel, which is adjusted by the position of the inlet, determines the flow reduction effect. The *M.flow* Instruments can be used to check, adjust and control the flow reduction level of the *M.flow*.

In combination with gravitational or differential pressure valves, the *M.flow* expands the possibilities for individualising hydrocephalus treatment. Therefore, a second scale on the

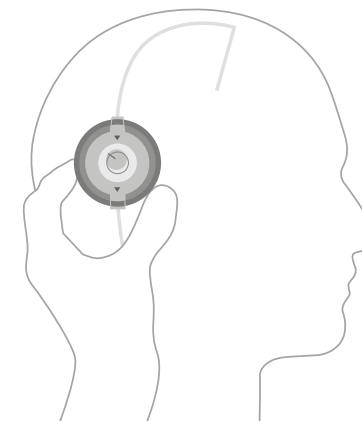
M.flow Instruments also allows the same instruments to be used for the adjustment of the *M.blue*. The proven technology of the instruments is the foundation for intuitive, secure and non-invasive adjustment.

The 'Active-Lock' mechanism protects the *M.flow* from unintentional adjustment by external magnetic fields. The *M.flow* is MRI compatible up to 3 Tesla. X-ray control after MRI imaging is therefore not necessary and patients are spared additional radiation exposure.



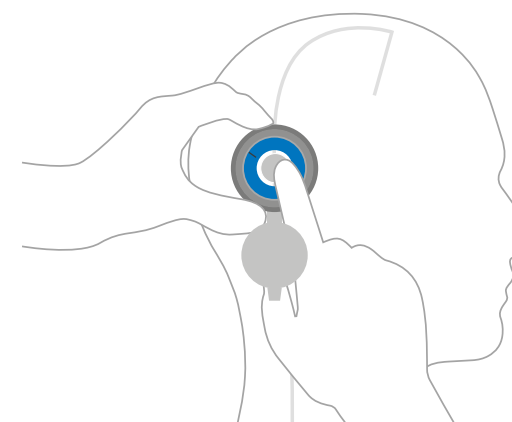
LOCATE

The *M.flow* compass can be used to locate the *M.flow*. The compass should be aligned so that the float is centred in the round mark.



VERIFY

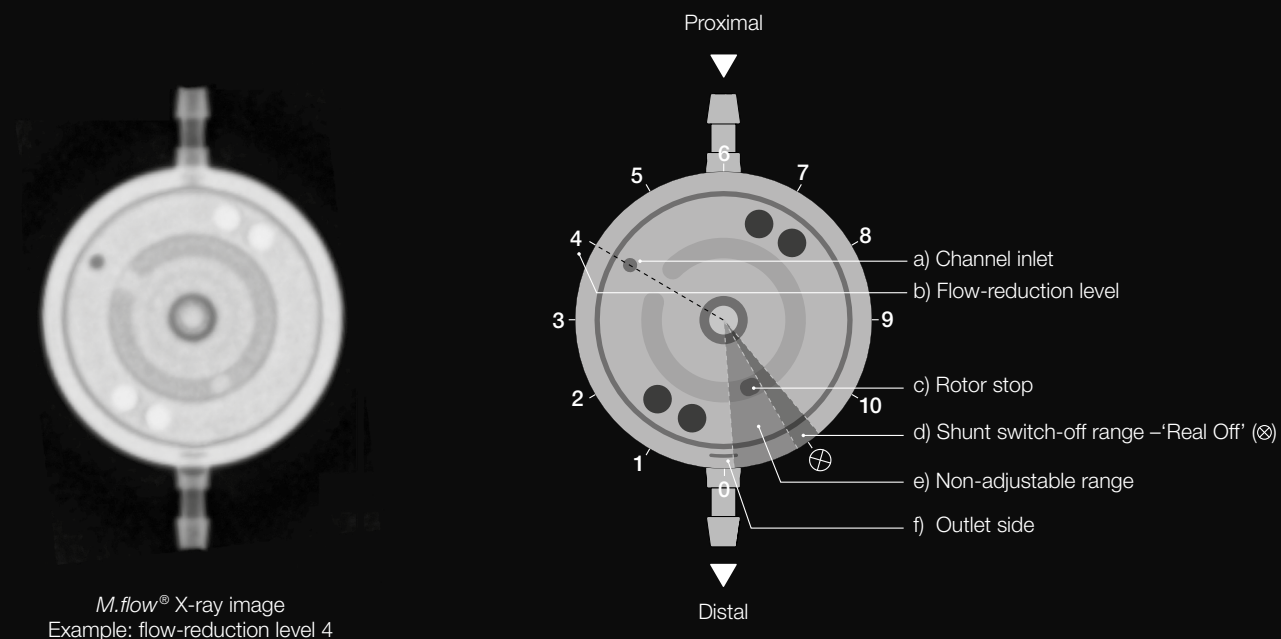
The set flow reduction level can be read using the outer scale. The line marking on the float indicates the current flow reduction level.



ADJUST

To adjust, place the adjustment ring in the open compass so that the marking points to the desired flow reduction level. Pressing the *M.flow* releases the 'Active Lock' mechanism and the flow reduction level is adjusted. After adjustment, it is recommended to verify the set flow reduction level.

In combination with gravitational or differential pressure valves, the M.flow expands the possibilities for individualising hydrocephalus treatment.



PRESSURE LEVEL DETECTION IN X-RAY IMAGE

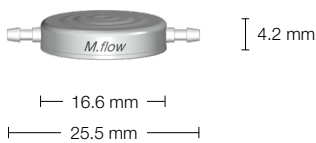
The set flow reduction level of the *M.flow* can be checked at any time with the *M.flow* compass without an additional X-ray examination.

For detection in the X-ray image, we recommend the use of the X-ray template.

The direction of flow and therefore the orientation of the *M.flow* can be determined using the rotor stop and the flow channel outlet. The position of the flow channel inlet indicates the set flow reduction level (example: flow reduction level 4).



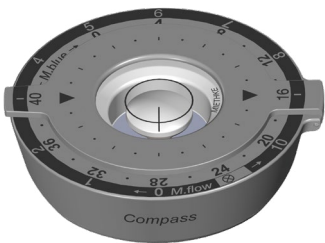
+ M.flow®



Diameter connector: 1.9 mm
Recommended catheter
diameters:
Inner diameter: 1.2 mm
Outer diameter: 2.5 mm

M.flow®	
Art. nr.	Flow-reduction level
FX910T	0 - 10

- + M.flow® Instruments Set
- + M.flow® Compass
- + M.flow® Checkmate
- + M.blue plus® Adjustment Ring
- + M.blue plus® Adjustment Assistant



M.flow® Compass



M.flow® Checkmate



M.blue plus® Adjustment Ring



M.blue plus® Adjustment Assistant

M.flow®	
Art. nr.	Instruments
FX900T	M.flow® Instruments Set (includes FX901T and FX892T)
FX901T	M.flow® Compass
FX904T	M.flow® Checkmate
FX892T	M.blue plus® Adjustment Ring
FX893T	M.blue plus® Adjustment Assistant



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