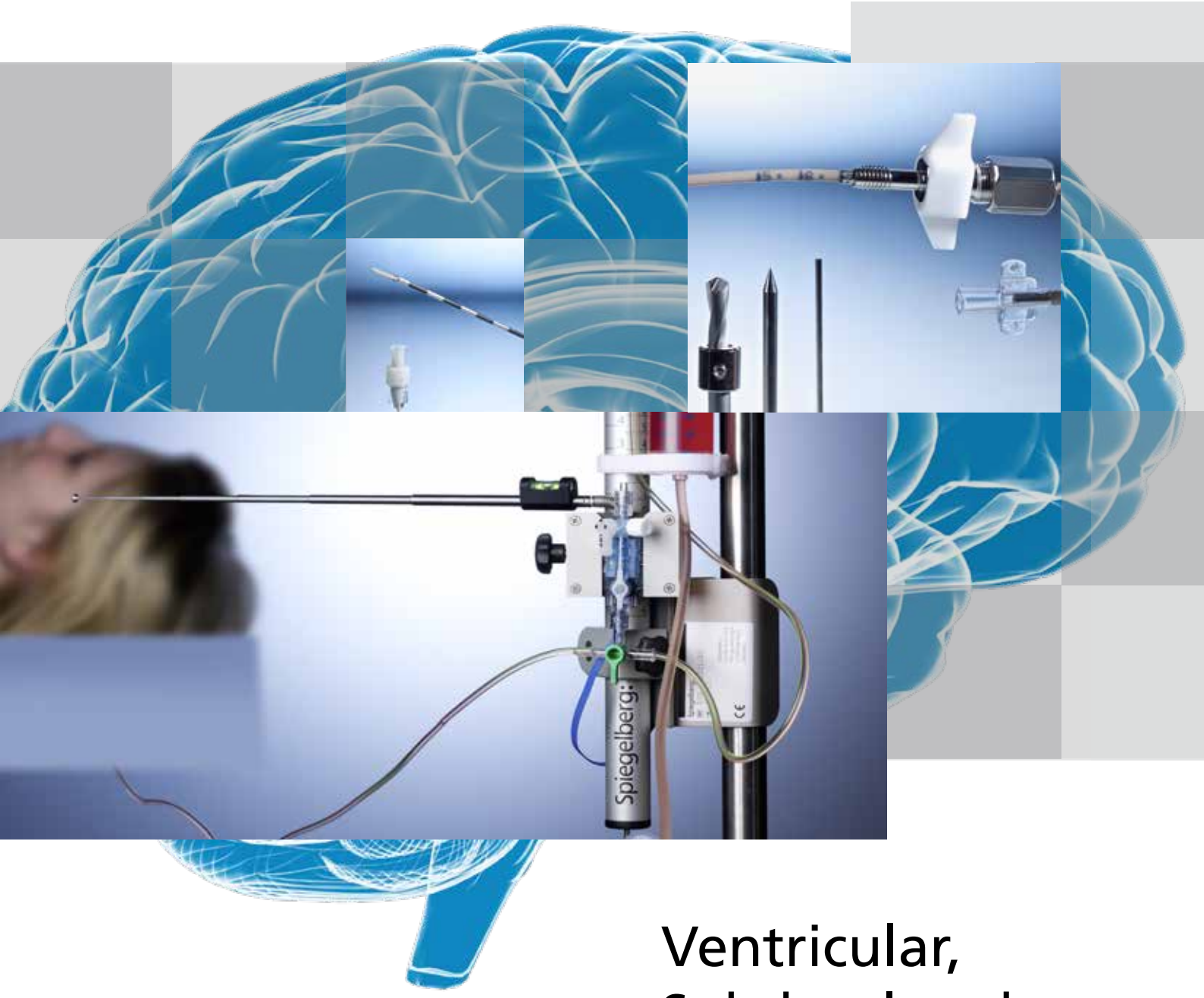
Spiegelberg:
Technology for brains



Ventricular, Subdural and Lumbar Drainage

Contents

Catheter Reference Chart

		Length	Outer Diameter				
			1,6 mm	2.0 mm (6F)	2.5 mm	2.7 mm (8F)	3.3 mm (10F)
EVD	**Standard Polyurethane**						
	Ventricular Catheter	270 mm				**EVD30.010.01**	**EVD30.030.01**
	Ventricular Catheter with Cranial Bolt	270 mm				**EVD30.014.01**	**EVD30.034.01**
	Silver-Impregnated Polyurethane						
	Ventricular Catheter	270 mm		**EVD30.020.02**		**EVD30.010.02**	**EVD30.030.02**
	Ventricular Catheter with Cranial Bolt	270 mm				**EVD30.014.02**	**EVD30.034.02**
	Ventricular Catheter with Hollow Stylet	200 mm				**EVD30.012.02**	**EVD30.032.02**
ESD	Subdural Drainage Catheter	270 mm				**EVD30.015.02**	**EVD30.035.02**
ELD	Lumbar Drainage Catheter	800 mm	**ELD33.010.02**				
IVD	**Silver-Impregnated Silicone**						
	Ventricular Shunt Catheter	230 mm			**IVD30.070.02**		
	Peritoneal Shunt Catheter	1200 mm			**IVD30.080.02**		

Ventricular Catheters

Ventricular Drainage Catheter

External Ventricular Drainage Catheters are used for CSF drainage to relieve elevated intracranial pressure (ICP). Indications include subarachnoid hemorrhage (SAH), traumatic brain injury (TBI), and acute hydrocephalus. The catheters are made of radiopaque polyurethane. Their round tip is closed. They have numbered centimeter markings. Stylet, trocar, Luer-Lock connector, and butterfly suture clamp are delivered along with the catheter.

Technical Information

Description	Ventricular Catheter 8F
REF	EVD30.010.01
Outside diameter	2.7 mm (8F)
Inside diameter	1.5 mm
Description	Ventricular Catheter 10F
REF	EVD30.030.01
Outside diameter	3.3 mm (10F)
Inside diameter	1.9 mm
Material	Radiopaque Polyurethane
Length	270 mm
Depth markings	50 mm to 100 mm (with 5 mm intervals) 150 mm 200 mm
Duration of use	Short-term, not longer than 30 days

Ventricular Drainage Catheter with Cranial Bolt

The Ventricular Catheter with Cranial Bolt is fixed in the skull by means of a bolt. After making a burr hole and opening the dura the probe is placed in the ventricle. The bolt is slid down to the burr hole and screwed into the bone. Finally the probe is fixed in the bolt with the clamping nut.

Technical Information

Description	Ventricular Catheter with Cranial Bolt 8F
REF	EVD30.014.01
Outside diameter	2.7 mm (8F)
Inside diameter	1.5 mm
Material	Radiopaque Polyurethane
Length	270 mm
Depth markings	50 mm to 70 mm (with 5 mm intervals) Depth range is printed twice; proximal markings are for alignment with bolt. 70 mm alignment on bolt means 70 mm true depth in brain.
Duration of use	Short-term, not longer than 30 days

Silverline® Ventricular Catheters

Silverline® Ventricular Drainage Catheter

Silverline® External Ventricular Drainage Catheters are used for CSF drainage to relieve elevated intracranial pressure (ICP). Indications include subarachnoid hemorrhage (SAH), traumatic brain injury (TBI), and acute hydrocephalus. The catheters are made of radiopaque polyurethane. Their round tip is closed. They have numbered centimeter markings. Stylet, trocar, Luer-Lock connector, and butterfly suture clamp are delivered along with the catheter. Silverline® catheters incorporate a silver additive intended to reduce the possibility that the surfaces of the device become microbially compromised.

Technical Information

Description	Silverline® Ventricular Catheter 6F
REF	EVD30.020.02
Outside diameter	2 mm (6F)
Inside diameter	1 mm
Description	Silverline® Ventricular Catheter 8F
REF	EVD30.010.02
Outside diameter	2.7 mm (8F)
Inside diameter	1.5 mm
Description	Silverline® Ventricular Catheter 10F
REF	EVD30.030.02
Outside diameter	3.3 mm (10F)
Inside diameter	1.9 mm
Material	Silver Impregnated Radiopaque Polyurethane
Length	270 mm
Depth markings	50 mm to 100 mm (with 5 mm intervals) 150 mm 200 mm
Duration of use	Short-term, not longer than 30 days

Silverline® Ventricular Catheter with Hollow Stylet

CSF flow out of the hollow stylet indicates a correct position of the catheter in the ventricle. A 90° turn of the stylet will stop the flow of CSF. Silverline® catheters incorporate a silver additive intended to reduce the possibility that the surfaces of the device become microbially compromised.

Technical Information

Description	Silverline® Ventricular Catheter with Hollow Stylet 8F
REF	EVD30.012.02
Outside diameter	2.7 mm (8F)
Inside diameter	1.5 mm
Description	Silverline® Ventricular Catheter with Hollow Stylet 10F
REF	EVD30.032.02
Outside diameter	3.3 mm (10F)
Inside diameter	1.9 mm
Material	Silver Impregnated Radiopaque Polyurethane
Length	200 mm
Depth markings	50 mm to 100 mm (with 5 mm intervals) 150 mm
Duration of use	Short-term, not longer than 30 days

Silverline® Ventricular Drainage Catheter with Cranial Bolt

The Ventricular Catheter with Cranial Bolt is fixed in the skull by means of a bolt. After making a burr hole and opening the dura the probe is placed in the ventricle. The bolt is slid down to the burr hole and screwed into the bone. Finally the probe is fixed in the bolt with the clamping nut. Silverline® catheters incorporate a silver additive intended to reduce the possibility that the surfaces of the device become microbially compromised.

Technical Information

Description	Silverline® Ventricular Catheter with Cranial Bolt 8F
REF	EVD30.014.02
Outside diameter	2.7 mm (8F)
Inside diameter	1.5 mm
Description	Silverline® Ventricular Catheter with Cranial Bolt 10F
REF	EVD30.034.02
Outside diameter	3.3 mm (10F)
Inner diameter	1.9 mm
Material	Silver Impregnated Radiopaque Polyurethane
Length	270 mm
Depth markings	50 mm to 70 mm (with 5 mm intervals) Depth range is printed twice; proximal markings are for alignment with bolt. 70 mm alignment on bolt means 70 mm true depth in brain.
Duration of use	Short-term, not longer than 30 days

Silverline® Subdural Drainage Catheters

Silverline® Subdural Drainage Catheters are indicated for drainage after evacuation of Chronic Subdural Hematoma (CSH). The catheters have an extra long 6 cm perforation zone close to the tip. Stylet, trocar, Luer-Lock connector, and butterfly suture clamp are delivered along with the catheter. Silverline® catheters incorporate a silver additive intended to reduce the possibility that the surfaces of the device become microbially compromised.

Technical Information

Description	Silverline® Subdural Catheter 8F
REF	EVD30.015.02
Outside diameter	2.7 mm (8F)
Inside diameter	1.5 mm
Description	Silverline® Subdural Catheter 10F
REF	EVD30.035.02
Outside diameter	3.3 mm (10F)
Inside diameter	1.9 mm
Material	Silver Impregnated Radiopaque Polyurethane
Length	270 mm
Depth markings	70 mm to 100 mm (with 5 mm intervals) 150 mm 200 mm
Duration of use	Short-term, not longer than 30 days

Silverline® Lumbar Drainage Catheters

Silverline® Lumbar Drainage Catheters are used for CSF drainage for diagnostic and therapeutic purposes. External lumbar drainage can be applied to treat CSF fistulas, to perform invasive diagnostic evaluation of Normal Pressure Hydrocephalus (NPH), and to reduce the risk of spinal cord ischemia during thoracoabdominal aortic surgery. Tuohy Needle, Luer-Lock connector, and butterfly suture clamp are delivered along with the catheter. Silverline® catheters incorporate a silver additive intended to reduce the possibility that the surfaces of the device become microbially compromised.

Technical Information

Description	Silverline® External Lumbar Drainage Catheter
REF	ELD33.010.02
Outside diameter	1.6 mm
Inside diameter	0.8 mm
Material	Silver Impregnated Radiopaque Polyurethane
Length	800 mm
Depth markings	50 mm to 295 mm (with 5 mm intervals)
Duration of use	Short-term, not longer than 30 days

Acessories

Manometer Tube

The manometer tube is used to determine the opening pressure. It is connected to the hollow stylet of a Silverline® Ventricular Drainage Catheter with Hollow Stylet. Opening pressure can be observed from the liquid level. The manometer tube is outfitted with lettered markings.

Technical Information

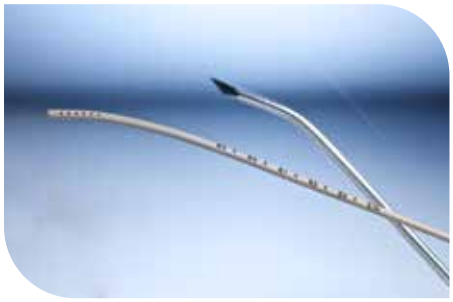
Description	Manometer Tube
REF	EVD30.013.01
Outside Diameter	2.7 mm
Inside Diameter	1.6 mm
Material	Polyurethane
Length	420 mm
Depth markings	50 mm to 30 mm (with 50 mm intervals)
Duration of Use	transient

Silverline® Shunt Catheters

Silverline® shunt catheters are permanent implants and can be connected to most customary shunt valves for catheters with an inner diameter of 1.3 mm. Silverline® shunt catheters incorporate a silver additive intended to reduce the possibility that the surfaces of the device become microbially compromised.

Silverline® Ventricular Shunt Catheter

Silverline® Ventricular Shunt Catheters are made of radiopaque implant grade silicone. They have numbered centimeter markings. A stylet and a trocar are delivered along with the catheter.

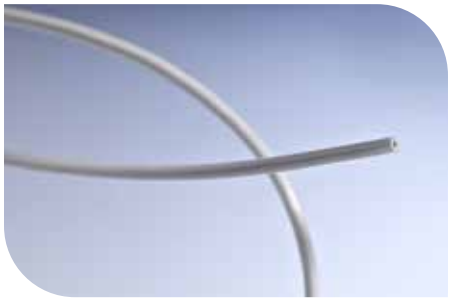


Technical Information

Description	Silverline® Ventricular Shunt Catheter 2.5mm
REF	IVD30.070.02
Outside diameter	2.5 mm
Inside diameter	1.3 mm
Material	Silver Impregnated Radiopaque Silicone
Length	230 mm
Depth markings	50 mm to 100 mm (with 5 mm intervals) 150 mm 200 mm
Duration of use	Long-term Implantable

Silverline® Peritoneal Shunt Catheter

Silverline® Peritoneal Shunt Catheters are made of two layers. The inner layer is made of radiopaque implant grade silicone. The outer layer is made of pure silicone.



Technical Information

Description	Silverline® Peritoneal Shunt Catheter
REF	IVD30.080.02
Thickness inner layer	0.4 mm
Material inner layer	Silver Impregnated Radiopaque Silicone
Thickness outer layer	0.2 mm
Material outer layer	Silicone
Outside diameter	2.5 mm
Inner diameter	1.3 mm
Length	1200 mm
Duration of use	Long-term Implantable

Silverline® Shunt Catheter Set

Technical Information

Description	Set consisting of Ventricular and Peritoneal Shunt Catheter
REF	IVD30.401.02

MR Safety Information

Non-clinical testing has demonstrated that Spiegelberg catheters are MR-conditional at 1.5T and 3T. A patient with these devices may be safely scanned in an MR system provided that the MR safety information accompanying the product is followed.

External Ventricular Drainage Kits

External Ventricular Drainage Kit

The External Ventricular Drainage Kit drains and collects cerebrospinal fluid (CSF) for external ventricular drainage. The kit comprises of a tube connector with a Luer-Lock for connection to the Ventricular Catheter, a drip chamber, and a replaceable drainage bag. The tube connector contains an access port. A three-way stopcock to connect a proximal pressure transducer, a three-way stopcock to connect a distal pressure transducer, a pump chamber and a check valve are provided. The drip chamber is aerated with a replaceable filter. All tube connectors except for the ones for the filter and drainage bag are permanently glued in place. The diameters of all connecting components and stopcocks are the same as the one of the ventricular catheter to avoid narrowing that can cause clogging.

Technical Information

Description	External Ventricular Drainage Kit
REF	EVD30.001.01/FV800
Description	Bag
REF	EVD30.101.02
Description	Filter
REF	EVD30.102.01/FV803
Length	1900 mm
Volume Drip Chamber	100 ml
Volume Drainage Bag	700 ml
Duration of use	Short-term, not longer than 30 days

Picture shows EVD Kit together with EVD Holder (p. 9)

External Ventricular Drainage Bag

The External Ventricular Drainage Bag drains and collects cerebrospinal fluid for external ventricular drainage, external subdural drainage and external lumbar drainage. It is indicated whenever accurate measuring of drained fluid and exact levelling are not essential. The bag has a tube with a Luer-Lock connector for connection to the catheter. An access port and a check valve are provided. The bag is aerated with a replaceable filter.

Technical Information

Description	External Ventricular Drainage Bag
REF	EVD30.106.01
Description	Filter
REF	EVD30.102.01/FV803
Volume	700 ml
Duration of use	Short-term, not longer than 30 days

External Ventricular Drainage Kit with Plate and Clamp

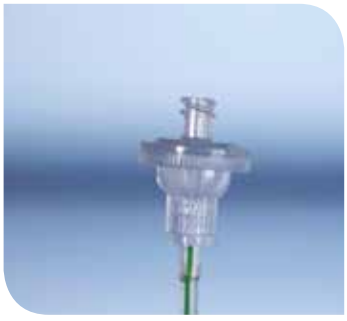
The External Ventricular Drainage Kit with Plate and Clamp drains and collects cerebrospinal fluid for external ventricular drainage. The kit comprises a tube connector with a Luer-Lock for connection to the Ventricular Catheter, a drip chamber, and a replaceable drainage bag. The tube connector contains an access port. A three-way stopcock to connect a proximal pressure transducer, a three-way stopcock to connect a distal pressure transducer, a pump chamber and a check valve are provided. The drip chamber is aerated with a replaceable filter. The drip chamber is mounted on a plate with scales in mmHg and cmH_2O allowing exact positioning at the patient´s foramen of Monroe level. All tube connectors except for the ones for the filter and drainage bag are permanently glued in place. The diameters of all connecting components and stopcocks are the same as the one of the ventricular catheter to avoid narrowing that can cause clogging.

Technical Information

Description	External Ventricular Drainage Kit with Plate and Clamp
REF	EVD30.004.01
Length	1900 mm
Volume Drip Chamber	100 ml
Volume Drainage Bag	700 ml
Duration of use	Short-term, not longer than 30 days

Replacement Parts

Description	Filter for External Ventricular Drainage Kit
REF	EVD30.102.01/FV803

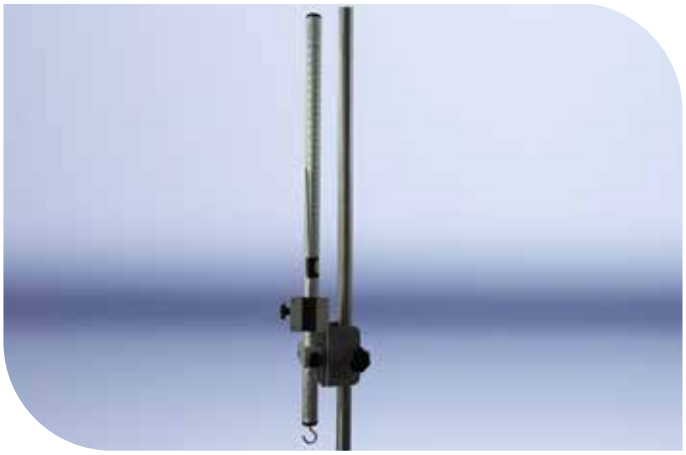


Description	Bag for External Ventricular Drainage Kit
REF	EVD30.101.02

External Ventricular Drainage Holders

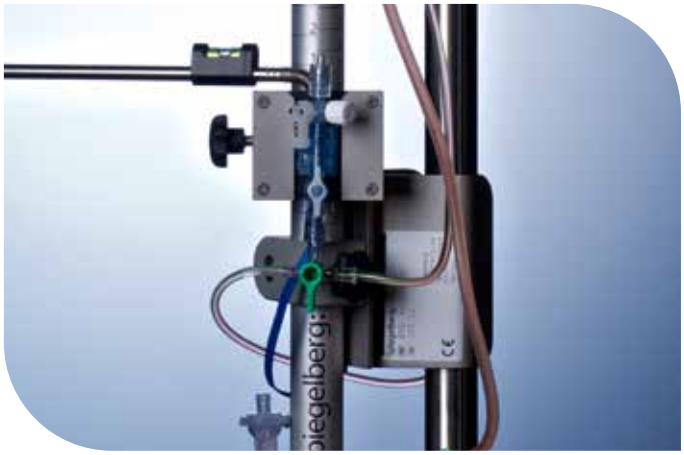
External Ventricular Drainage Holder with Swivel Joint

Holder for securing the EVD-Kit to an infusion stand. The holder is used to fix the kit securely. It is outfitted with a screw clamp for attachment to infusion stands, bed frames etc. The holder is fixed in such a way that the zero mark is located at the same height as the patient's foramen of Monroe. A swivel joint adjusts the holder to a vertical position. The Velcro straps are used to fix the drip chamber securely at the desired height. The height is shown on the scale in mmHg or cmH_2O. A fixture is available to attach an external pressure transducer at the height of the zero mark. Fixtures are available for pressure transducers from various suppliers. Fixtures for pressure transducers are also available with an integrated levelling device.



The holder is outfitted with a screw clamp for attachment to infusion stands.

The clamp has a swivel joint for vertical alignment.



Holders for pressure transducers are available for different manufacturers' transducers. They are available with a levelling device which has a spirit level for horizontal alignment.

See next page for complete list of accessories.

Technical Information

Description	External Ventricular Drainage Holder with Swivel Joint
REF	EVD30.221.01
Material	Stainles steel
Rod diameter	25 mm
Rod length	600 mm

External Ventricular Drainage Holder “Freiburg”

The ‘Freiburg’ holder consists of a rod that is fixed to a plate, which is placed unter the mattress of the bed. The weight of the mattress and the weight of the patient fix the holder securely in place. The holder is adjusted such that the zero mark is at the elevation of the foramen of Monroe of the patient. When the elevation of the head-part of the bed is changed, the elevation of the drip chamber in relation to the foramen of Monro remains unchanged. A swivel joint adjusts the holder to a vertical position. The Velcro straps are used to fix the drip chamber securely at the desired height. The height is shown on the scale in mmHg or cmH_2O. A fixture is available to attach an external pressure transducer at the height of the zero mark. Fixtures are available for pressure transducers from various suppliers.Fixtures for pressure transducers are also available with an integrated levelling device.

Technical Information

Description	External Ventricular Drainage Holder Freiburg left
REF	EVD30.211.01
Description	External Ventricular Drainage Holder Freiburg right
REF	EVD30.211.02
Description	External Ventricular Drainage Holder Freiburg left and right
REF	EVD30.211.03
Material	Stainless steel, Aluminum
Rod diameter	25 mm
Rod length	600 mm
Plate size	400 mm x 400 mm

Accessories:

Description	REF
Holder for PfM EVD-Kit	EVD30.212.01
Holder for Pressure Transducer PvB	EVD30.231.01
Holder for Pressure Transducer Medex LogiCal	EVD30.232.01
Holder for Pressure Transducer Abbott	EVD30.233.01
Holder for Pressure Transducer Baxter	EVD30.234.01
Holder for Pressure Transducer with levelling rod PvB	EVD30.231.02
Holder for Pressure Transducer with levelling rod Medex LogiCal	EVD30.232.02
Holder for Pressure Transducer with levelling rod Abbott	EVD30.233.02
Holder for Pressure Transducer with levelling rod Baxter	EVD30.234.02

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DIN EN ISO 13 485 certified

Version E02/2015-10-21