

FOR A HEALTHY BRAIN

Shunt and Catheter Systems

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NEU-DES-001-EN-00



OUR MISSION

Our compassion for healthy life is leading us **to focus on innovative thinking and new technologies in order to provide medical devices that make living easier,** more affordable and effective.

OUR VISION

We believe in a **world where everybody is taken care of, comfortable and happy,** in sickness and in health.

OUR VALUES

EXECUTION / Strive for executional excellence which directly impacts patients, our central focus, **PASSION** / Show passion in how we do our job so we continuously move forward, innovate and improve, **INTEGRITY** / Act in honesty, transparency and fairness that create the trust in our company, **THINK GLOBAL** / Reach out to global markets to assure no patient is left behind anywhere, **EMBRACE AND DRIVE CHANGE** / Focus on change through collaboration with all our stakeholders.



DESU Medical manufacturing and R & D activities are performed in Class 10,000 and 1,000 clean room facilities within the Hacettepe University Technopark establishment.

+ INDEX



Shunt Systems



Catheter Systems



BİÇAKCILAR

Touching Lives One Device at a Time

SILICONE BASED SHUNT SYSTEMS

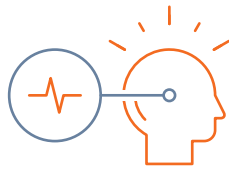
MR or CT Scans Compatible

All the silicone based valves are designed and manufactured using polypropylene and silicone elastomer which decreases the possibility of deformation of the valves due to sticking. None of the valves contain any metal parts which gives them the uniqueness of non-interference with **MRI or CT** scans. The radiopaque barium marks on the valves indicate pressure, flow direction and valve-to-catheter approximation. Furthermore, all the valves are built in with a membrane valve mechanism and incorporated with reservoirs for percutaneous cerebrospinal fluid (CSF) access.

Antibiotic Release Duration: 28 Days

In addition, all the **BIÇAKCILAR/DESU** valves have high technology version that contains antibiotics in the silicone body of the valves. Antibiotic impregnation of the silicone body is one of a kind quality that none of the other valves in the market has. Controlled release of the impregnated antibiotics from the silicone body for a duration of **28 days** is also the optimum method for prevention of infection which is one of the main problems of shunt surgery.

BIÇAKCILAR/DESU SILICONE SHUNT SYSTEMS ARE MANUFACTURED AND SUPPLIED IN THREE PRESSURE CATEGORIES: LOW PRESSURE, MEDIUM PRESSURE, HIGH PRESSURE.



Pressure Levels	Standard Shunt Pressure Range (mm H2O)	Shunt Marking
HIGH PRESSURE	100 - 110	● ● ●
MEDIUM PRESSURE	50 - 110	● ●
LOW PRESSURE	10 - 50	●

S h u n t

S y s t e m s *

SILICONE BASED SHUNT SYSTEMS

Defit Shunts

- Defit Ultra Small (pediatric/infant) shunts (standard valve body / antibiotic impregnated valve body)
- Defit Small shunts (standard valve body / antibiotic impregnated valve body)
- Defit Regular (adult) shunts (standard valve body / antibiotic impregnated valve body)

Decurve Shunts

- Decurve Pediatric shunts (standard valve body / antibiotic impregnated valve body)
- Decurve Adults shunts (standard valve body / antibiotic impregnated valve body)

Silicone Based Shunts Kits

- Defit Shunt Kits (standard / semi antibiotic impregnated / full antibiotic impregnated)
- Decurve Shunt Kits (standard / semi antibiotic impregnated / full antibiotic impregnated)

POLYSULPHONE BASED SHUNT SYSTEMS

Depus Quick Response Shunts

- (standard valve body / antibiotic impregnated valve body)

Depus Quick Response Shunts Kits

- Standart Depus Quick Response Shunt Kits
- Semi antibiotic impregnated Depus Quick Response Shunt Kits
- Full antibiotic impregnated Depus Quick Response Shunt Kits

SHUNT ACCESSORY

Desiphon Antisiphon Device



* All shunt systems are supplied sterile (method: EO-Ethylene Oxide).

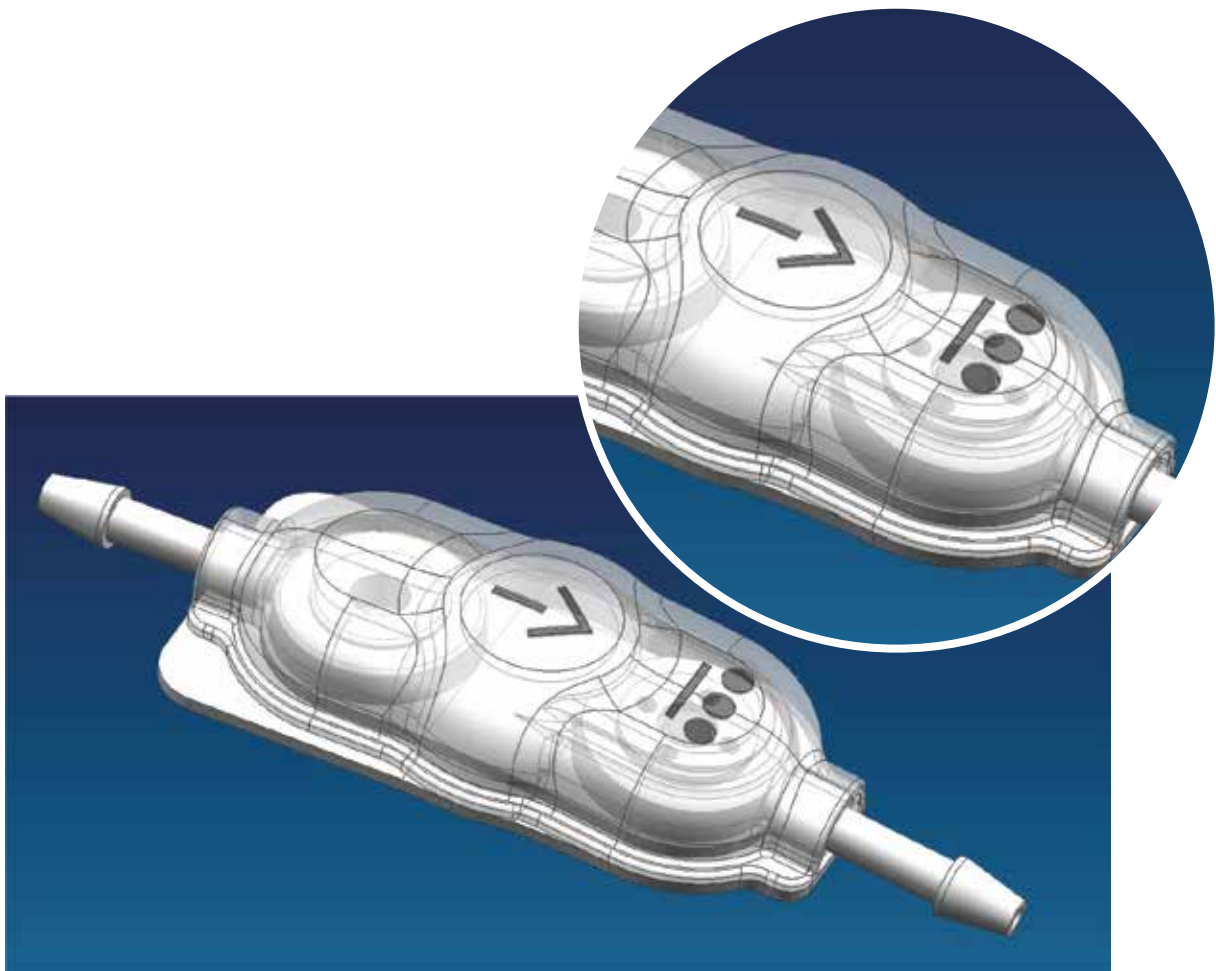
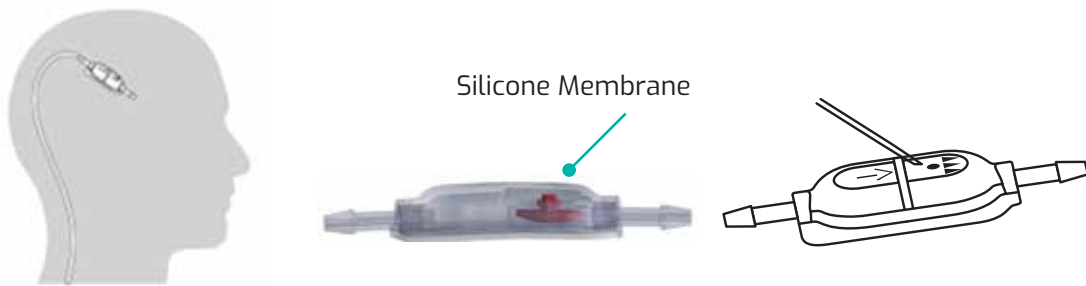
Silicone Based Shunt Systems

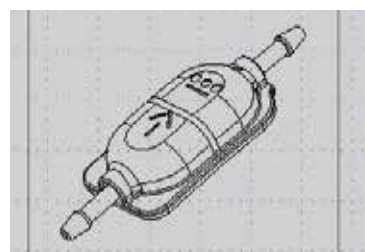
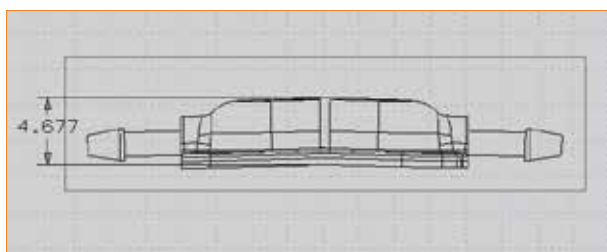
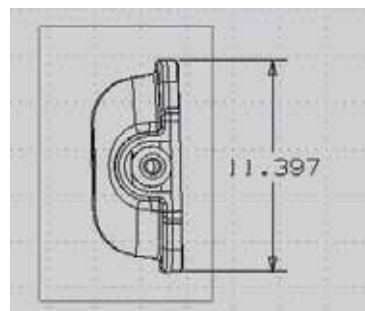
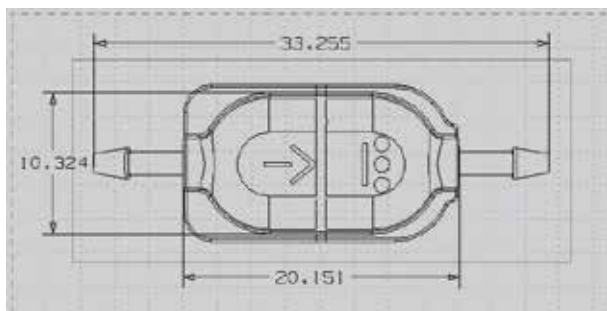
• Defit Shunts

The shunt valve is a mechanical device that regulates flow which is attained through the simple fluid dynamics that requires a pressure drop of fluid while flowing through the obstacles like orifices, and the change of flow across the sectional area is placed intentionally on the flow passage.

Defit Ultra Small (pediatric/infant) shunts (standard valve body / antibiotic impregnated valve body)

Defit Ultra Small shunts are used in infants and small children during treatment of hydrocephalus, where controlled drainage of CSF is required.





● Standard Defit Ultra Small Shunts Reference Codes According To Pressure Levels

●	● ●	● ● ●
DFUS-L-PEB	DFUS-M-PEB	DFUS-H-PEB
Defit Ultra Small Pediatric Silicone Shunt With Reinforced Base	Defit Ultra Small Pediatric Silicone Shunt With Reinforced Base	Defit Ultra Small Pediatric Silicone Shunt With Reinforced Base
Low Pressure	Medium Pressure	High Pressure



● Antibiotic Impregnated Defit Ultra Small Shunts Reference Codes According To Pressure Levels

●	● ●	● ● ●
ADFUS-L-PEB	ADFUS-M-PEB	ADFUS-H-PEB
Antibiotic Impregnated Defit Ultra Small Pediatric Silicone Shunt With Reinforced Base	Antibiotic Impregnated Defit Ultra Small Pediatric Silicone Shunt With Reinforced Base	Antibiotic Impregnated Defit Ultra Small Pediatric Silicone Shunt With Reinforced Base
Low Pressure	Medium Pressure	High Pressure

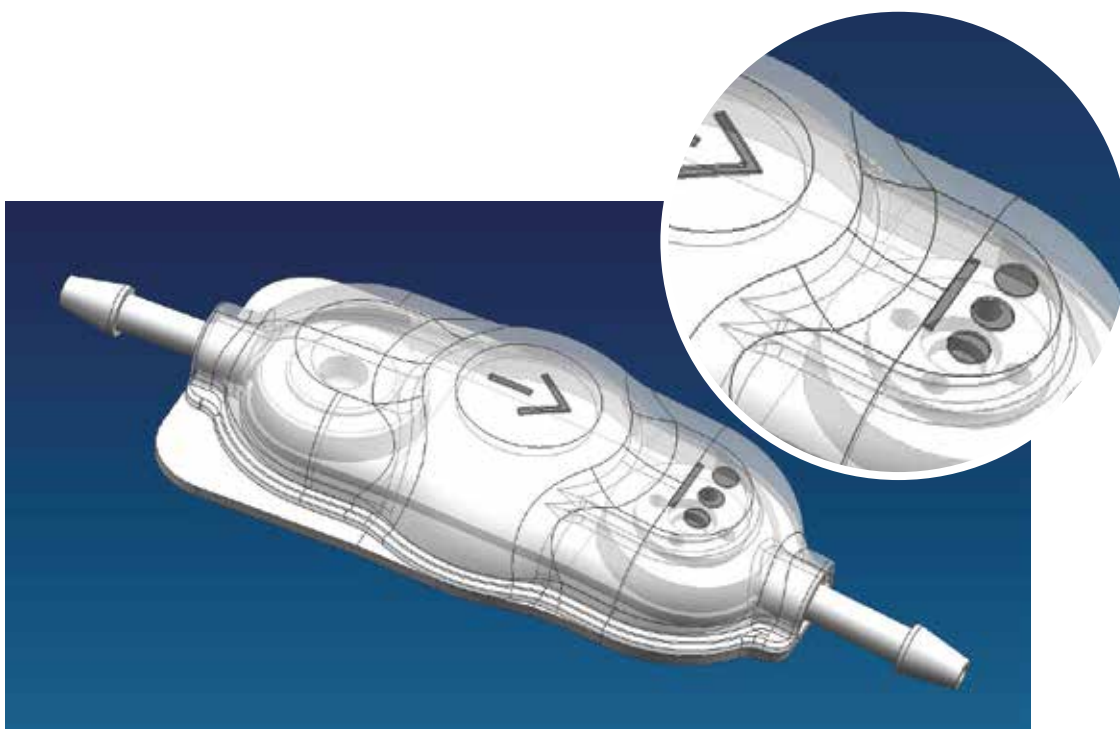
• Antibiotic Impregnated Defit Small Shunts Reference Codes according to Pressure Levels

●	● ●	● ● ●
ADFS-L-PEB	ADFS-M-PEB	ADFS-H-PEB
Antibiotic Impregnated Defit Small Pediatric Silicone Shunt With Reinforced Base	Antibiotic Impregnated Defit Small Pediatric Silicone Shunt With Reinforced Base	Antibiotic Impregnated Defit Small Pediatric Silicone Shunt With Reinforced Base
Low Pressure	Medium Pressure	High Pressure



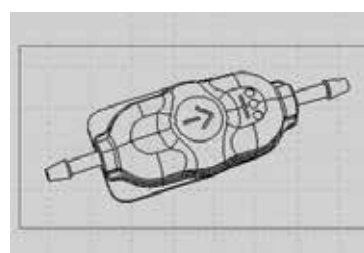
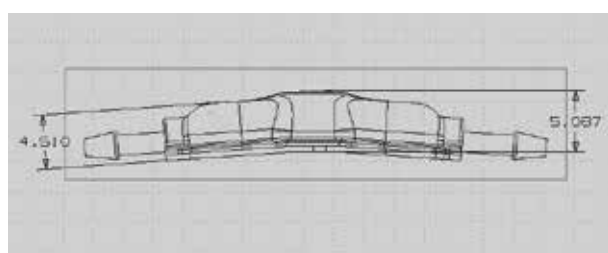
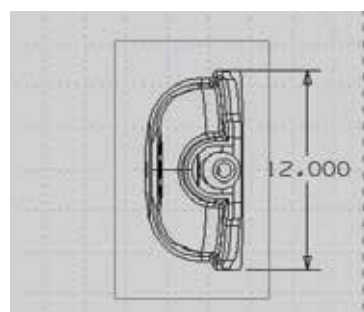
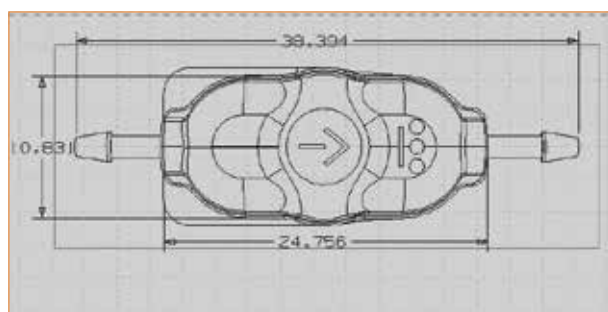
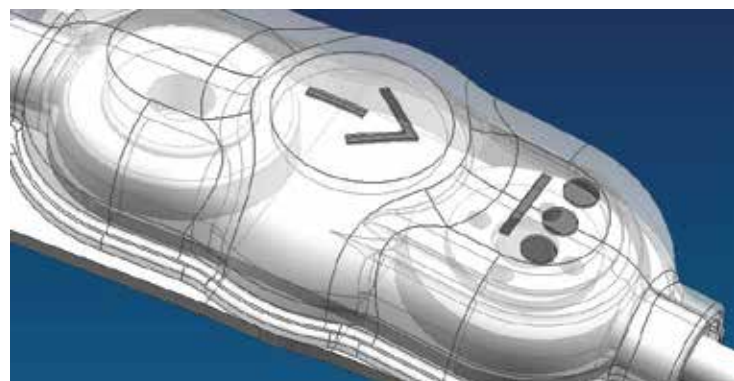
Defit Regular (Adult) shunts (standard valve body / antibiotic impregnated valve body)

Defit Regular shunts are used in adults during treatment of hydrocephalus where controlled drainage of CSF is required.



Defit Small shunts (standard valve body / antibiotic impregnated valve body)

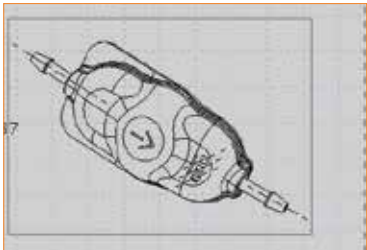
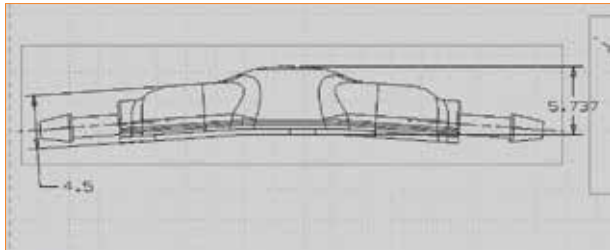
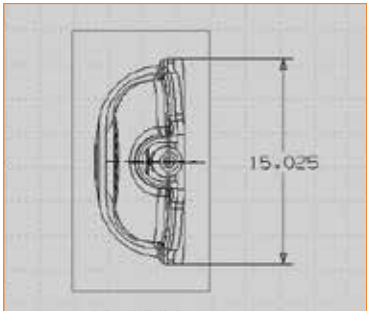
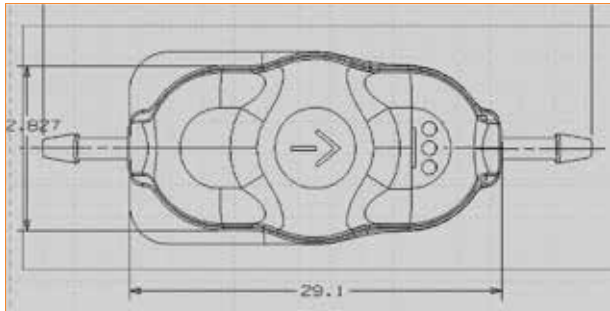
Defit Small shunts are used in children and adults during treatment of hydrocephalus where controlled drainage of CSF is required.



Standard Defit Small Shunts Reference Codes according to Pressure Levels

●	● ●	● ● ●
DFS-L-PEB	DFS-M-PEB	DFS-H-PEB
Defit Small Pediatric Silicone Shunt With Reinforced Base	Defit Small Pediatric Silicone Shunt With Reinforced Base	Defit Small Pediatric Silicone Shunt With Reinforced Base
Low Pressure	Medium Pressure	High Pressure





● Standard Defit Regular Shunts Reference Codes according to Pressure Levels

●	● ●	● ● ●
DFR-L-PEB	DFR-M-PEB	DFR-H-PEB
Defit Regular Silicone Shunt With Reinforced Base	Defit Regular Silicone Shunt With Reinforced Base	Defit Regular Silicone Shunt With Reinforced Base
Low Pressure	Medium Pressure	High Pressure



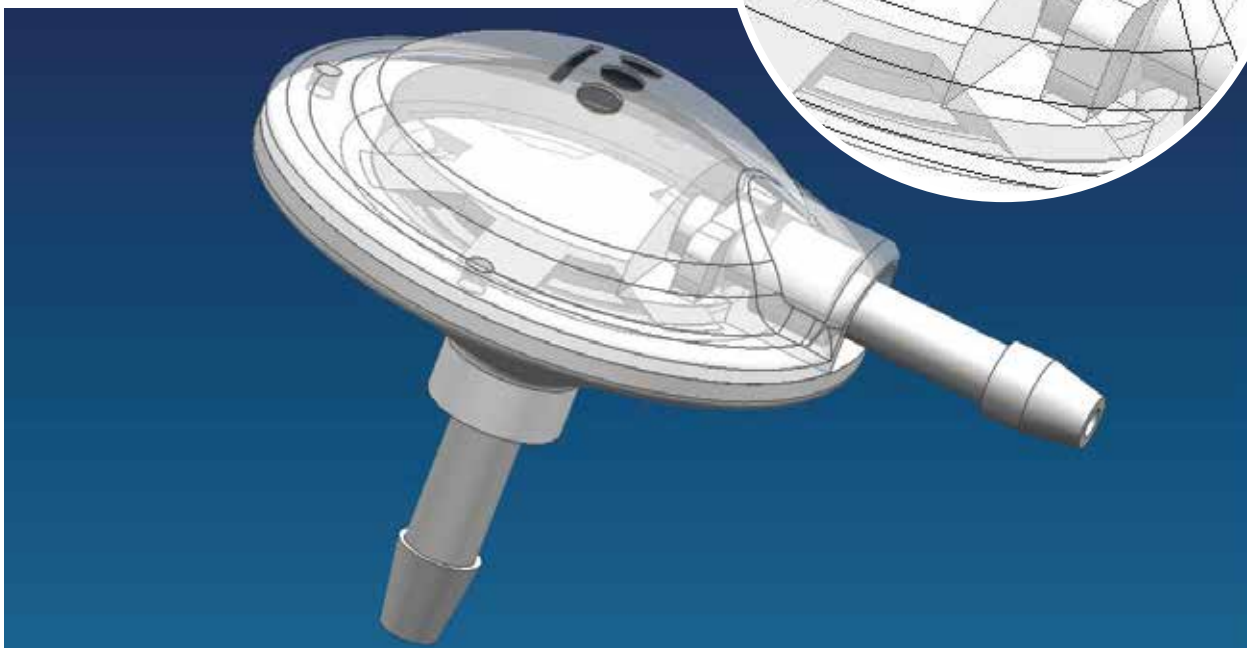
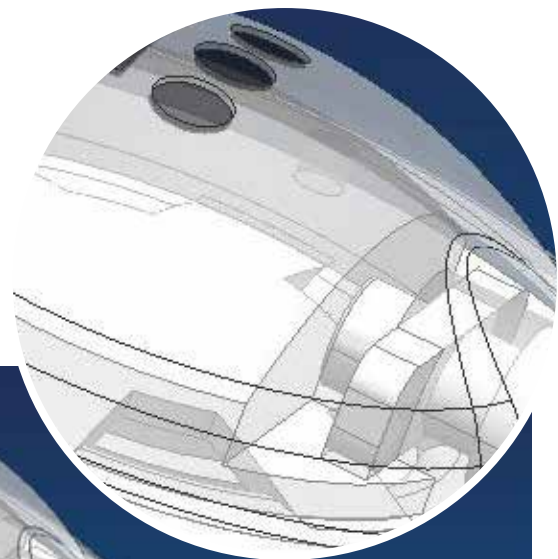
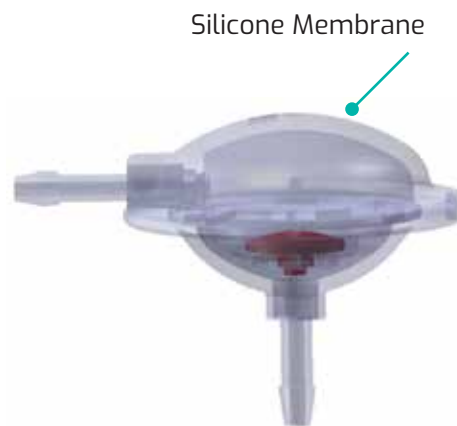
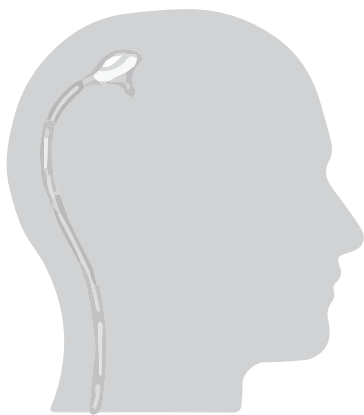
● Antibiotic Impregnated Defit Regular Shunts Reference Codes according to Pressure Levels

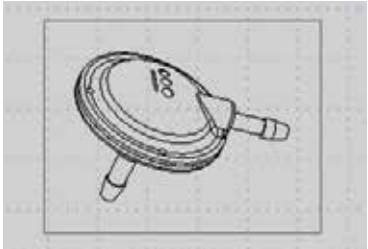
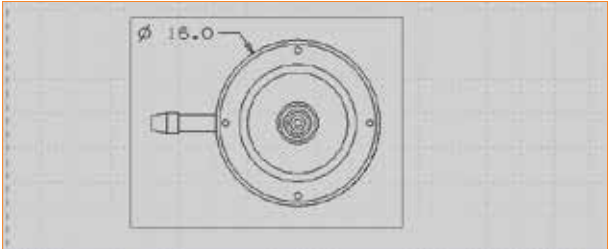
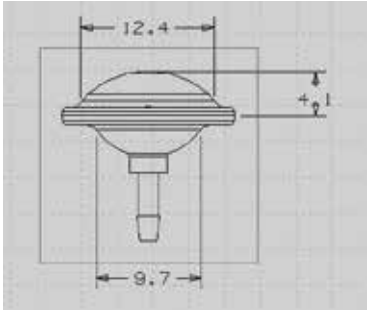
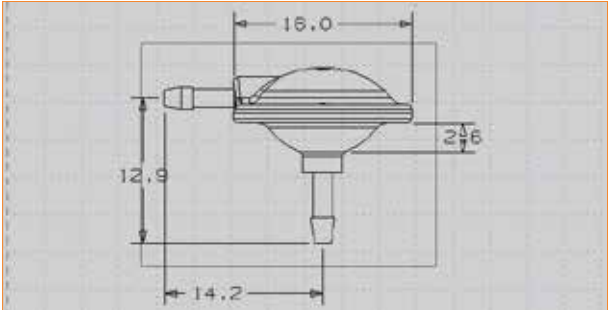
●	● ●	● ● ●
ADFR-L-PEB	ADFR-M-PEB	ADFR-H-PEB
Antibiotic Impregnated Defit Regular Silicone Shunt With Reinforced Base	Antibiotic Impregnated Defit Regular Silicone Shunt With Reinforced Base	Antibiotic Impregnated Defit Regular Silicone Shunt With Reinforced Base
Low Pressure	Medium Pressure	High Pressure

- **Decurve Shunts**

1. Decurve Pediatric Shunts (standard valve body / antibiotic impregnated valve body)

Decurve Pediatric shunts are used in infants and small children during treatment of hydrocephalus where controlled drainage of CSF is required.





Standard Decurve Pediatric Shunts Reference Codes according to Pressure Levels

●	● ●	● ● ●
DCP-L	DCP-M	DCP-H
Decurve Pediatric Silicone Shunt	Decurve Pediatric Silicone Shunt	Decurve Pediatric Silicon Shunt
Low Pressure	Medium Pressure	High Pressure

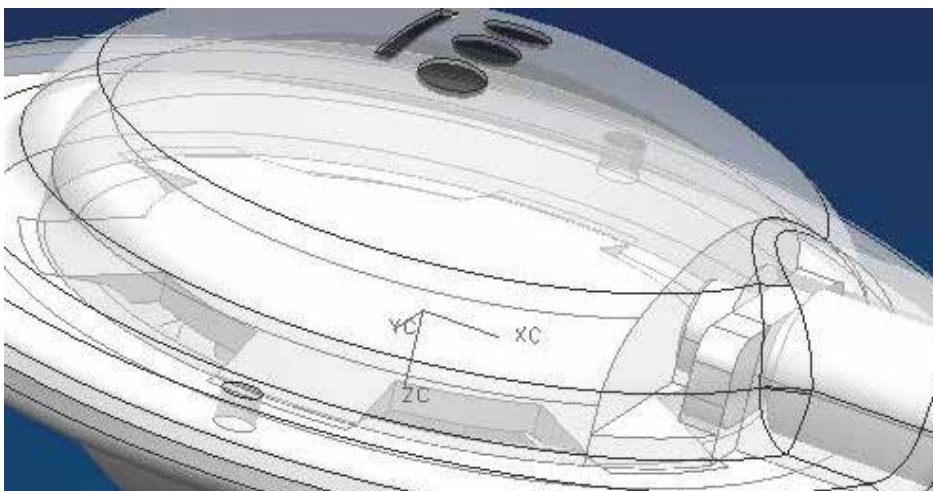
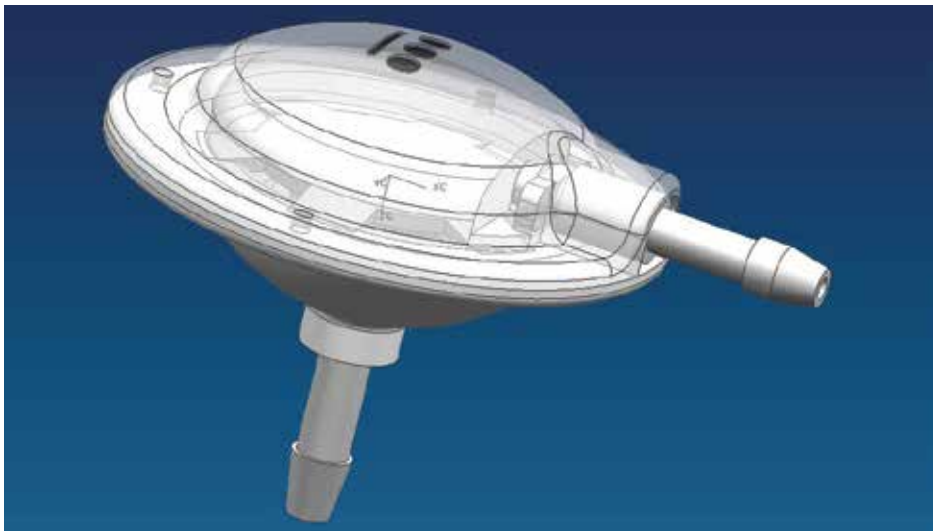


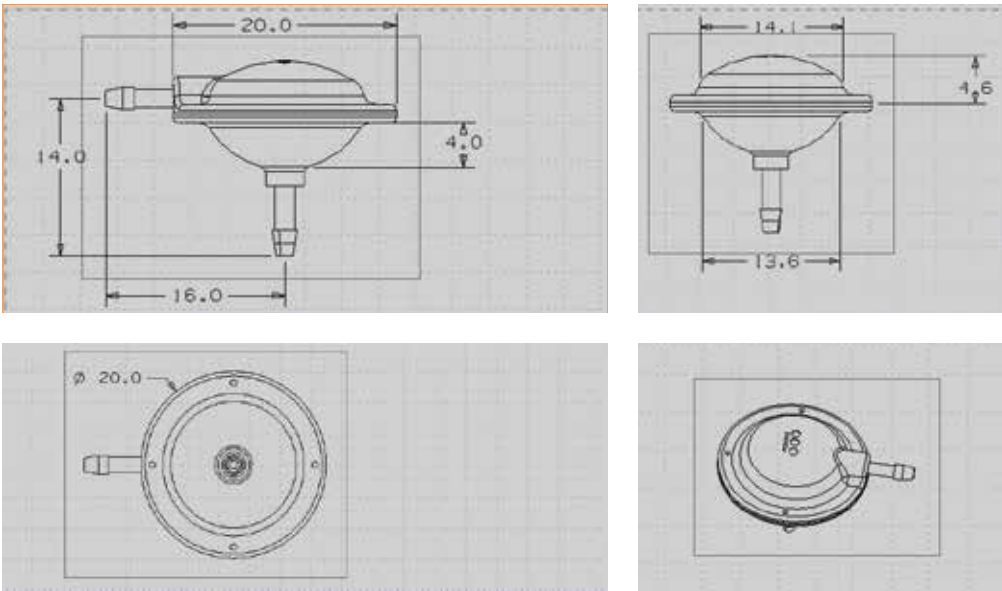
Antibiotic Impregnated Decurve Pediatric Shunts Reference Codes according to Pressure Levels

●	● ●	● ● ●
ADCP-L	ADCP-M	ADCP-H
Antibiotic Impregnated Decurve Pediatric Silicone Shunt	Antibiotic Impregnated Decurve Pediatric Silicone Shunt	Antibiotic Impregnated Decurve Pediatric Silicone Shunt
Low Pressure	Medium Pressure	High Pressure

Decurve Adult Shunts (standard valve body / antibiotic impregnated valve body)

Decurve Adult shunts are used in adults during treatment of hydrocephalus where controlled drainage of CSF is required.





● Standard Decurve Adult Shunts Reference Codes According to Pressure Levels

●	● ●	● ● ●
DCA-L	DCA-M	DCA-H
Decurve Adult Silicone Shunt	Decurve Adult Silicone Shunt	Decurve Adult Silicone Shunt
Low Pressure	Medium Pressure	High Pressure



● Antibiotic Impregnated Decurve Adult Shunts Reference Codes According to Pressure Levels

●	● ●	● ● ●
ADCA-L	ADCA-M	ADCA-H
Antibiotic Impregnated Decurve Adult Silicone Shunt	Antibiotic Impregnated Decurve Adult Silicone Shunt	Antibiotic Impregnated Decurve Adult Silicone Shunt
Low Pressure	Medium Pressure	High Pressure

• Silicone Based Shunt Kits

Defit Shunt Kits (standard / semi antibiotic impregnated / full antibiotic impregnated)

Standard Defit Shunt Kit	Semi Antibiotic Impregnated Defit Shunt Kit	Full Antibiotic Impregnated Shunt Kit
<p>Silicone outer shell and polypropylene inner body design</p> <p>MRI and CT compatible design that does not contain metal parts</p> <p>Radiopaque markings that show direction of flow and pressure level</p> <p>Reservoir design that allows CSF (crania spinal fluid) sampling</p> <p>Ultrasmall, Small and Regular valve types</p>	<p>Major advantage compared to Standard Defit Shunt kits, with antibiotic impregnated catheter content</p> <p>Wide spectrum of protection through joint impregnation of Clindamycin HCL and Rifampicin</p> <p>Prevention of bacteria colonization up to 28 days</p> <p>Low obstruction risk due to hydrophilic nature of catheters</p> <p>Ultrasmall, Small and Regular valve types</p>	<p>Major advantage compared to Standard and Semi impregnated Defit Shunt kits, with antibiotic impregnated catheter and shunt body content</p> <p>Wide spectrum of protection through joint impregnation of Clindamycin HCL and Rifampicin</p> <p>Prevention of bacteria colonization up to 28 days</p> <p>Low obstruction risk due to hydrophilic nature of catheters</p> <p>Ultrasmall, Small and Regular valve types</p>



• Defit Ultrasmall Shunt Kits Reference Codes According To Pressure Levels

STANDARD	SEMI ANTIBIOTIC IMPREGNATED	FULL ANTIBIOTIC IMPREGNATED
DFUS-L-VCK-PEB DFUS-M-VCK-PEB DFUS-H-VCK-PEB	DFUS-L-VACK-PEB DFUS-M-VACK-PEB DFUS-H-VACK-PEB	ADFUS-L-VACK-PEB ADFUS-M-VACK-PEB ADFUS-H-VACK-PEB
Defit Ultra Small Pediatric Silicone Shunt With Reinforced Base With Ventriculoperitoneal Catheter Kit Low-Medium-High Pressure	Defit Ultra Small Pediatric Silicone Shunt With Reinforced Base With Antibiotic Impregnated Ventriculoperitoneal Catheter Kit Low-Medium-High Pressure	Antibiotic Impregnated Defit Ultra Small Pediatric Silicone Shunt With Reinforced Base With Antibiotic Impregnated Ventriculoperitoneal Catheter Kit Low-Medium-High Pressure





● Defit Small Shunt Kits Reference Codes According To Pressure Levels

STANDARD	SEMI ANTIBIOTIC IMPREGNATED	FULL ANTIBIOTIC IMPREGNATED
DFS-L-VCK-PEB DFS-M-VCK-PEB DFS-H-VCK-PEB	DFS-L-VACK-PEB DFS-M-VACK-PEB DFS-H-VACK-PEB	ADFS-L-VACK-PEB ADFS-M-VACK-PEB ADFS-H-VACK-PEB
Defit Small Pediatric Silicone Shunt With Reinforced Base With Ventriculoperitoneal Catheter Kit	Defit Small Pediatric Silicone Shunt With Reinforced Base With Antibiotic Impregnated Ventriculoperitoneal Catheter Kit	Antibiotic Impregnated Defit Small Pediatric Silicone Shunt With Reinforced Base With Antibiotic Impregnated Ventriculoperitoneal Catheter Kit
Low-Medium-High Pressure	Low-Medium-High Pressure	Low-Medium-High Pressure



● Defit Regular Shunt Kits Reference Codes According To Pressure Levels

STANDARD	SEMI ANTIBIOTIC IMPREGNATED	FULL ANTIBIOTIC IMPREGNATED
DFR-L-VCK-PEB DFR-M-VCK-PEB DFR-H-VCK-PEB	DFR-L-VACK-PEB DFR-M-VACK-PEB DFR-H-VACK-PEB	ADFR-L-VACK-PEB ADFR-M-VACK-PEB ADFR-H-VACK-PEB
Defit Regular Pediatric Silicone Shunt With Reinforced Base With Ventriculoperitoneal Catheter Kit	Defit Regular Pediatric Silicone Shunt With Reinforced Base With Antibiotic Impregnated Ventriculoperitoneal Catheter Kit	Antibiotic Impregnated Defit Regular Pediatric Silicone Shunt With Reinforced Base With Antibiotic Impregnated Ventriculoperitoneal Catheter Kit
Low-Medium-High Pressure	Low-Medium-High Pressure	Low-Medium-High Pressure

Decurve Shunt Kits (standard / semi antibiotic impregnated / full antibiotic impregnated)

Standard Decurve Shunt Kit	Semi Antibiotic Impregnated Decurve Shunt Kit	Full Antibiotic Impregnated Decurve Shunt Kit
<p>Silicone outer shell and polypropylene inner body design</p> <p>MRI and CT compatible design that does not contain metal parts</p> <p>Radiopaque markings that show direction of flow and pressure level</p> <p>Reservoir design that allows CSF (crania spinal fluid) sampling</p> <p>12 mm Pediatric and 16 mm Adult valve types</p>	<p>Major advantage compared to Standard Defit Shunt kits, with antibiotic impregnated catheter content</p> <p>Wide spectrum of protection through joint impregnation of Clindamycin HCL and Rifampicin</p> <p>Prevention of bacteria colonization up to 28 days</p> <p>Low obstruction risk due to hydrophilic nature of catheters</p> <p>12 mm Pediatric and 16 mm Adult valve types</p>	<p>Major advantage compared to Standard and Semi impregnated Defit Shunt kits, with antibiotic impregnated catheter and shunt body content</p> <p>Wide spectrum of protection through joint impregnation of Clindamycin HCL and Rifampicin</p> <p>Prevention of bacteria colonization up to 28 days</p> <p>Low obstruction risk due to hydrophilic nature of catheters</p> <p>12 mm Pediatric and 16 mm Adult valve types</p>



• Decurve Pediatric Shunt Kits – Reference Codes According To Pressure Levels

STANDARD	SEMI ANTIBIOTIC IMPREGNATED	FULL ANTIBIOTIC IMPREGNATED
DCP-L-VCK DCP-M-VCK DCP-H-VCK	DCP-L-VACK DCP-M-VACK DCP-H-VACK	ADCP-L-VACK ADCP-M-VACK ADCP-H-VACK
Decurve Pediatric Silicone Shunt With Ventriculoperitoneal Catheter Kit Low-Medium-High Pressure	Decurve Pediatric Silicone Shunt With Antibiotic Impregnated Ventriculoperitoneal Catheter Kit Low-Medium-High Pressure	Antibiotic Impregnated Decurve Pediatric Silicone Shunt With Antibiotic Impregnated Ventriculoperitoneal Catheter Kit Low-Medium-High Pressure





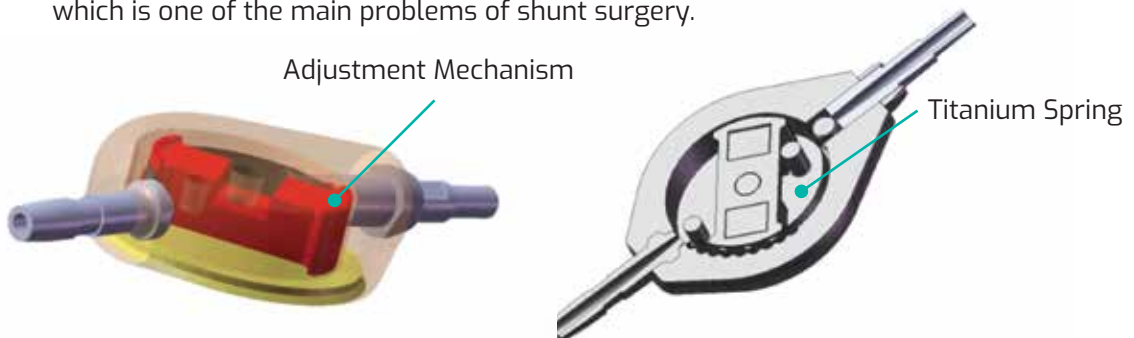
• Decurve Adult Shunt Kits – Reference Codes According To Pressure Levels

STANDARD	SEMI ANTIBIOTIC IMPREGNATED	FULL ANTIBIOTIC IMPREGNATED
DCA-L-VCK DCA-M-VCK DCA-H-VCK	DCA-L-VACK DCA-M-VACK DCA-H-VACK	ADCA-L-VACK ADCA-M-VACK ADCA-H-VACK
Decurve Adult Silicone Shunt With Ventriculoperitoneal Catheter Kit Low-Medium-High Pressure	Decurve Adult Silicone Shunt With Antibiotic Impregnated Ventriculoperitoneal Catheter Kit Low-Medium-High Pressure	Antibiotic Impregnated Decurve Adult Silicone Shunt With Antibiotic Impregnated Ventriculoperitoneal Catheter Kit Low-Medium-High Pressure

• Polysulphone Based Shunt Systems

Depus Quick Response shunt is designed to regulate and sustain the intra-ventricular pressure (IVP) of the patient via controlled drainage of the CSF (cerebrospinal fluid). The shunt has two versions according to intention of use: ventriculoperitoneal and lumboperitoneal. The mechanism within the shunt is triggered by positive ventricular pressure and the valve opens immediately. The ruby ball and the titanium spring valve are the essentials of this adjustable system that works on the theory of hydrodynamic leverage. The shunt body is designed to have uniquely smaller dimensions than its competitors. Inner diameter of the valve is 10 mm, outer diameter is 13,5 mm and the length is 16 mm.

BIÇAKCILAR/DESU Depus Quick Response shunt is also designed with an infection-preventing version which includes an antibiotic impregnated silicone cover. This antibiotic impregnated body design of the Depus valve is unique in the current shunt market. Controlled release of the impregnated antibiotics from the silicone body for 28 days is also the ultimate method for infection prevention, which is one of the main problems of shunt surgery.



• Polysulphone Based Shunt Systems

DEPUS QUICK RESPONSE SHUNTS (STANDARD VALVE BODY / ANTIBIOTIC IMPREGNATED SILICONE COVER)

Polysulphone shunts are manufactured using radiopaque titanium, ruby ball and polysulphone (long term implantable) and are supplied sterile (ETO). The shunt pressure levels are marked with tantalum which allows MRI visibility.

• Standard Depus Quick Response Shunts Reference Codes According To Pressure Levels

●	● ●	● ● ●
DP-L	DP-M	DP-H
Depus Quick Response Shunt	Depus Quick Response Shunt	Depus Quick Response Shunt
Low Pressure	Medium Pressure	High Pressure



• Depus Quick Response Shunt With Antibiotic Impregnated Silicone Cover Reference Codes According to Pressure Levels

●	● ●	● ● ●
ADP-L	ADP-M	ADP-H
Depus Quick Response Shunt With Antibiotic Impregnated Silicone Cover	Depus Quick Response Shunt With Antibiotic Impregnated Silicone Cover	Depus Quick Response Shunt With Antibiotic Impregnated Silicone Cover
Low Pressure	Medium Pressure	High Pressure



DEPUS QUICK RESPONSE SHUNT KITS

Standard Depus Quick Response Shunt Kits	Semi Antibiotic impregnated Depus Quick Response Shunt Kits	Full Antibiotic Impregnated Depus Quick Response Shunt Kits
<p>Polysulphone body design enhanced with titanium spring and ruby ball</p> <p>MRI and CT compatible design that does not contain metal parts</p> <p>Tantalum markings to indicate direction of flow</p>	<p>Major advantage compared to Standard Depus Quick Response shunts due to antibiotic impregnated catheters</p> <p>Wide spectrum of protection through joint impregnation of Clindamycin HCl and Rifampicin</p> <p>Prevention of bacteria colonization up to 28 days</p> <p>Low obstruction risk due to hydrophilic nature of catheters</p>	<p>Antibiotic impregnated catheters and antibiotic impregnated silicone cover on valve body</p> <p>Wide spectrum of protection through joint impregnation of Clindamycin HCl and Rifampicin</p> <p>Prevention of bacteria colonization up to 28 days</p> <p>Low obstruction risk due to hydrophilic nature of catheters and shunt body</p>

• Depus Quick Response Shunt Kits Reference Codes According To Pressure Levels

STANDARD	SEMI ANTIBIOTIC IMPREGNATED	FULL ANTIBIOTIC IMPREGNATED
DP-L-VCK DP-M-VCK DP-H-VCK	DP-L-VACK DP-M-VACK DP-H-VACK	ADP-L-VACK ADP-M-VACK ADP-H-VACK
Depus Quick Response Shunt With Ventriculoperitoneal Catheter Kit Low-Medium-High Pressure	Depus Quick Response Shunt With Antibiotic Impregnated Ventriculoperitoneal Catheter Kit Low-Medium-High Pressure	Depus Quick Response Shunt With Antibiotic Impregnated Silicone Cover and Antibiotic Impregnated Ventriculoperitoneal Catheter Kit Low-Medium-High Pressure



• Depus Quick Response Lumboperitoneal Shunt Kits Reference Codes According To Pressure Levels

STANDARD	LUMBOPERITONEAL DEPUS QUICK RESPONSE SHUNT KIT
LPDP-L-LPCK LPDP-M-LPCK LPDP-H-LPCK	LPDP-L-LPACK LPDP-M-LPACK LPDP-H-LPACK
Depus Quick Response Lumboperitoneal Shunt With Lumboperitoneal Catheter Kit and Polypropylene Connector Low-Medium-High Pressure	Depus Quick Response Shunt Lumbar Catheter Peritoneal Catheter

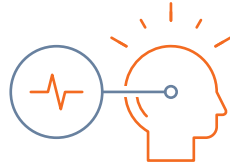


• Shunt Accessory

Desiphon Anti-siphon Device

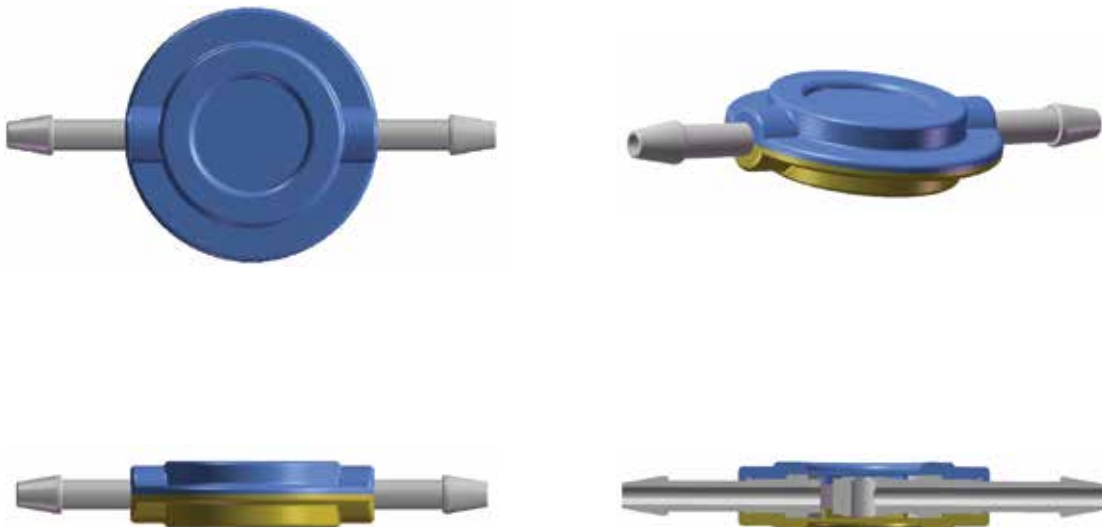
Antisiphon is used to prevent the siphon effect which might occur during hydrocephalus treatment when the CSF requires drainage or shunting and the peritoneal catheter's position suddenly changes from horizontal to vertical.

Major principle is to create a sudden closure effect in order to overcome the over-drainage that occurs under siphon effect.



CATEGORY	STANDARD SHUNT PRESSURE LEVELS (mmH2O)	SHUNT PRESSURE LEVELS WHEN SHUNT IS USED TOGETHER WITH THE ANTISIPHON DEVICE (mmH2O)
High Pressure	110 - 180	135 - 210
Medium Pressure	50 - 110	65 - 135
Low Pressure	10 - 50	25 - 65

• Difference in Shunt Pressure Levels During Antisiphon Device Use



CATHETER SYSTEMS



BIÇAKCILAR

Touching Lives One Device at a Time



C a t h e t e r

S y s t e m s ☆

CATHETER TYPES

VENTRICULAR CATHETER
(STANDARD / ANTIBIOTIC IMPREGNATED)

PERITONEAL CATHETER
(STANDARD / ANTIBIOTIC IMPREGNATED)

VENTRICULOPERITONEAL CATHETER KIT
(STANDARD / ANTIBIOTIC IMPREGNATED)

EXTERNAL VENTRICULAR DRAINAGE CATHETER
(STANDARD / ANTIBIOTIC IMPREGNATED)

EXTERNAL LUMBAR DRAINAGE CATHETER
(STANDARD / ANTIBIOTIC IMPREGNATED)

LUMBAR CATHETER

Catheter Accessories

- A) STYLET
- B) TROCAR
- C) FIXATION TAB
- D) CONNECTORS

- Luer Connector
- Right Angle Connector
- Straight Connector
- L Type Connector
- Y Type Connector



* All catheter systems are supplied sterile (method: EO-Ethylene Oxide).

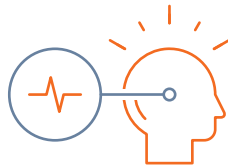


Catheter Types

BIÇAKCILAR/DESU Catheter systems are used as a component of shunt systems indicated for use to drain or shunt the cerebrospinal fluid (CSF) in treatment of hydrocephalus. All **BIÇAKCILAR/DESU** Catheters are manufactured with barium impregnated silicone raw material to allow radiopacity.

In addition, tantalum is used to mark the length measurements on the catheters, which allows visibility during magnetic resonance imaging (MRI). Antibiotic impregnated catheters (barium impregnated) are manufactured using long-term implantable grade silicone tubing.

THE CATHETERS, WHICH ARE IMPREGNATED WITH RIFAMPICIN AND CLINDAMYCIN HCL, ARE SHOWN TO DECREASE GRAM-POSITIVE BACTERIA COLONIZATION.



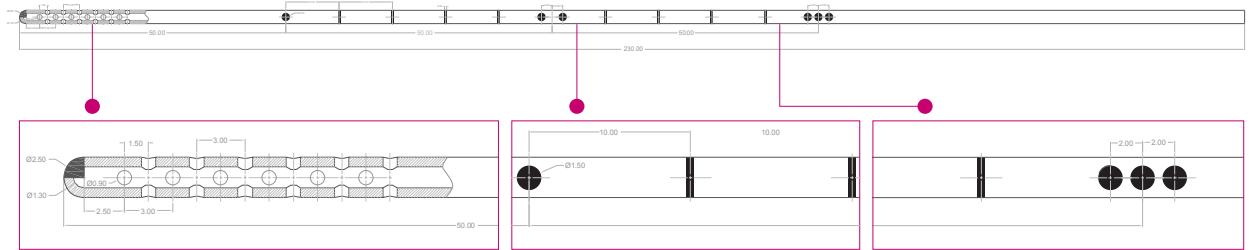
CATHETER TYPE	LENGTH (CM)	INNER DIAMETER / OUTER DIAMETER (MM)
Ventricular Catheter	23	1.3 / 2.5
Peritoneal Catheter	120	1.1 / 1.3
External Ventricular Catheter	31	1.5 / 3
External Lumbar Catheter	80	0.8 / 1.6
Lumbar Catheter	106	0.8 / 1.6

Length and Inner and Outer Diameter Measurements of the Catheters

VENTRICULAR CATHETER (STANDARD / ANTIBIOTIC)

Ventricular catheter is used to transfer excess CSF (cerebrospinal fluid) from the brain ventricles to the shunt. Ventricular catheter length is 23 cm. Inner diameter of the catheter is 1.3 mm and outer diameter is 2.5 mm.

Tantalum is used to mark the length measurements on the catheters on 5, 10 and 15 cm points.



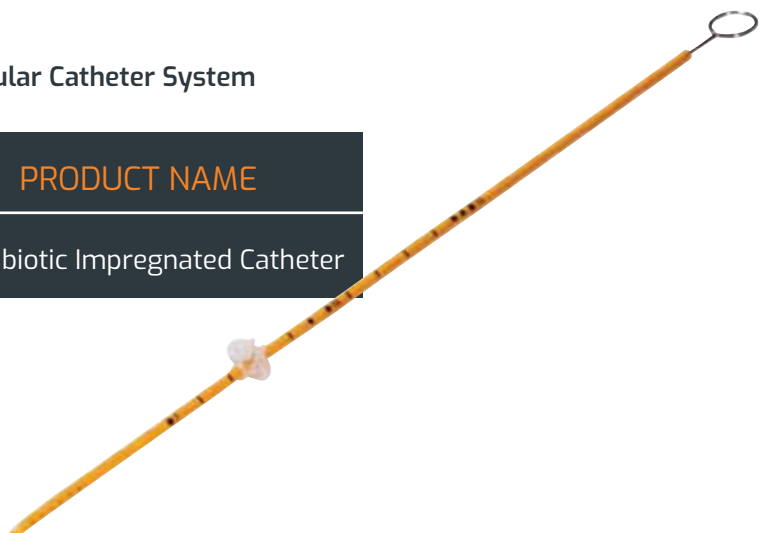
• Standard Ventricular Catheter System

PRODUCT CODE	PRODUCT NAME
SVCK	Standard Ventricular Catheter



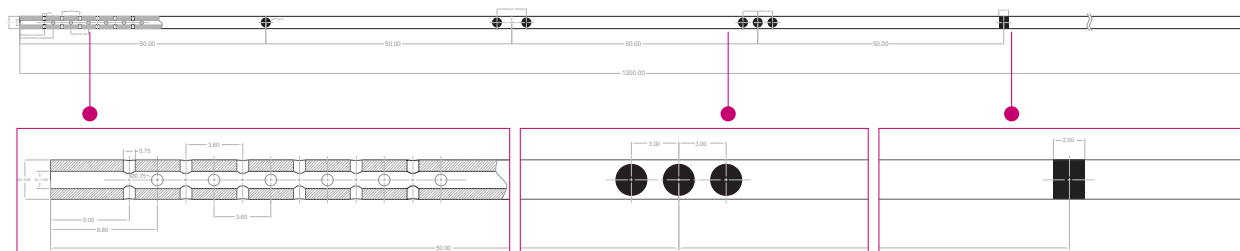
• Antibiotic impregnated Ventricular Catheter System

PRODUCT CODE	PRODUCT NAME
SVCK	Antibiotic Impregnated Catheter



PERITONEAL CATHETER (STANDARD / ANTIBIOTIC IMPREGNATED)

Peritoneal catheter is used to transfer excess CSF, that is drained with a controlled pressure from the ventricles by the use of ventriculoperitoneal shunt. Peritoneal catheter length is 120 cm. Inner diameter of the catheter is 1.1 mm and outer diameter is 1.3 mm. Tantalum is used to mark the length measurements on the catheters on 5, 10, 15 and 20 cm points.



● Standard Peritoneal Catheter System

PRODUCT CODE	PRODUCT NAME
SPCK	Peritoneal distal catheter – closed tip



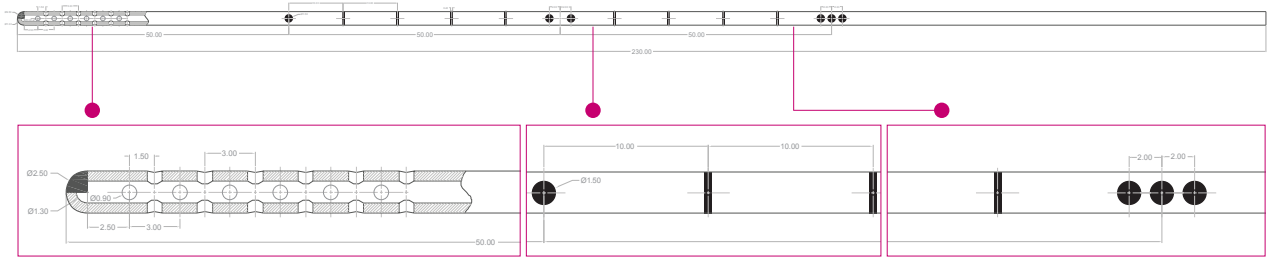
● Antibiotic Impregnated Peritoneal Catheter System

PRODUCT CODE	PRODUCT NAME
ASPCK	Antibiotic impregnated distal catheter – closed tip



VENTRICULOPERITONEAL CATHETER KIT (STANDARD / ANTIBIOTIC IMPREGNATED)

Standard Ventriculoperitoneal Catheter Kit	Antibiotic Impregnated Ventriculoperitoneal Catheter Kit
<p>Barium impregnated radiopaque silicone material</p> <p>Magnetic Resonance Imaging (MRI) visibility through the use of tantalum markings</p> <p>24 entry holes at the proximal tip to avoid obstructio</p>	<p>Barium impregnated radiopaque silicone material</p> <p>Magnetic Resonance Imaging (MRI) visibility through the use of tantalum markings</p> <p>24 entry holes at the proximal tip to avoid obstruction</p> <p>Antibacterial protection for 28 days, through impregnation of Rifampicin and Clindamycin HCl</p> <p>Colonization and obstruction preventing inner and outer surface through hydrophilic characteristic</p> <p>(0.054%) Rifampicin and (0.15%) Clidamycin HCl content</p> <p>Antibiotic dose suitable for pediatric use</p>



External Ventricular Drainage Catheter is the main component of the External Neurological Drainage System and is used to drain excess CSF from the brain ventricles and transfer it to the drainage system.



- Antibiotic Impregnated EVD Catheter System

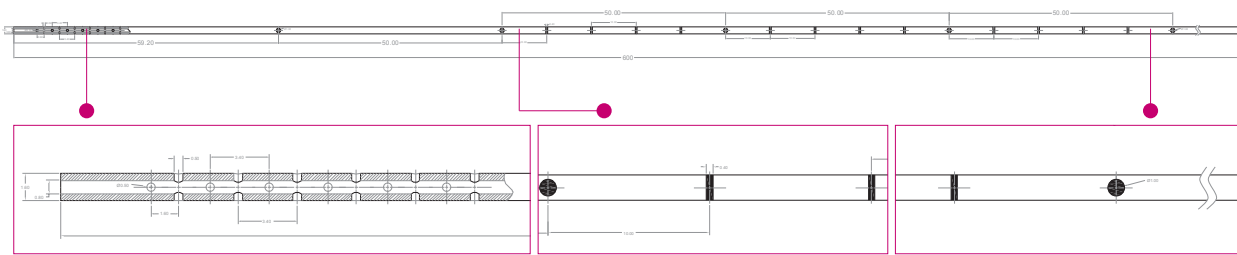
PRODUCT CODE	PRODUCT NAME	PRODUCT PROPERTIES
EVDACK	Antibiotic Impregnated External Ventricular Drainage Catheter System	<p>Barium impregnated radiopaque silicone material</p> <p>Magnetic Resonance Imaging (MRI) visibility through the use of tantalum markings</p> <p>24 entry holes at the proximal tip to avoid obstruction</p> <p>Antibacterial protection for 28 days, through impregnation of Rifampicin and Clindamycin HCL on the catheter</p> <p>Colonization and obstruction preventing inner and outer surface through hydrophilic characteristic</p> <p>(0.054%) Rifampicin and (0.15%) Clidamycin HCL content</p> <p>Antibiotic dose suitable for pediatric use</p> <p>it system including trocar, stylet, luer connector and fixation tab</p>

External Lumbar Drainage Catheter is the main component of the External Neurological Drainage System and is used to drain excess CSF from the lumbar subarachnoid cavity and transfer it to the drainage system.



LUMBAR CATHETER (STANDARD)

Lumbar catheter is one of the components of the lumboperitoneal catheter kit within the lumboperitoneal shunt system. Lumboperitoneal catheter kit consists of lumbar catheter and peritoneal catheter. Lumbar catheter is used to transfer excess CSF from the subarachnoid cavity to the shunt; while the shunt delivers the CSF with a pre-arranged pressure level to the peritoneal cavity.



• Standard Lumboperitoneal Catheter System

PRODUCT CODE	PRODUCT NAME	PRODUCT PROPERTIES
LPCK	Lumbo Peritoneal Catheter System	<p>Barium impregnated radiopaque silicone material</p> <p>Magnetic Resonance Imaging (MRI) visibility through the use of tantalum markings</p> <p>24 entry holes at the proximal tip to avoid obstruction</p> <p>Lumboperitoneal catheter system with lumbar catheter and peritoneal catheter</p>





Catheter Accessories

STYLET

Stylet is used to transfer the catheter to the brain ventricle during catheterization of the ventricular shunt catheter or external ventricular drainage catheter.

- Stylet used for Ventricular Catheter



- Stylet used for External Ventricular Drainage Catheter



TROCAR

Trocar is used for the transfer of the external ventricular catheter under the tissue during catheterization.

NOTE:

- Trocar with the thinner connection tip is used with the external lumbar drainage system; while trocar with the thicker connection tip is used with the external ventricular drainage system.





FIXATION TAB

Fixation tab is an aiding device that is used to fix the External Ventricular Drainage Catheter and the External Lumbar Drainage Catheter.

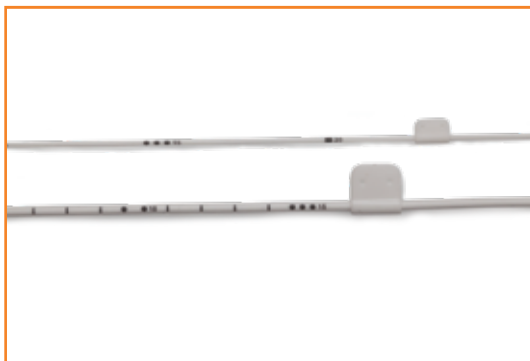
- EVD Catheter Fixation Tab



- External Lumbar Catheter Fixation Tab



- Fixation Tab Use



CONNECTORS

- **Luer Connector**

Luer connector is an aiding device that is used to connect the External Ventricular Drainage Catheter / External Lumbar Catheter to the External Neurological Drainage System (ENDS).

- **Lumbar Drainage Luer Connector**



- **EVD Luer Connector**



- **Right Angle Connector**

Right angle connector is an aiding device that is used to change the direction of the Ventricular catheter, when needed during surgery, without causing bending or obstruction.





- **Straight Connector**

Straight connector is an aiding device that is used to connect different catheter pieces to each other during surgery.



- **L Type Connector**

L type connector is used to change the direction of the Ventricular / Peritoneal Catheter and/or connect different catheter pieces to each other, during surgery when needed, without causing bending or obstruction.



- **Y Type Connector**

Y connector is used in one of the following conditions: to connect two shunts to one peritoneal catheter; to have 2 peritoneal catheter outlets from one shunt or to have two ventricular catheter inlets to one shunt.



