

# RWD Osmotic Pump Kit User Manual

## 1-Introduction

RWD Osmotic Pump can deliver solutions through catheters. According to the target location, RWD Osmotic Pump Kit can be chosen. RWD Osmotic Pump Kit include Brain Infusion Kit and Catheter Delivery Kit. Brain Infusion Kit is specially used to deliver solutions to central nervous system, and Catheter Delivery Kit is used to deliver solutions subcutaneously.

## 2-Product List

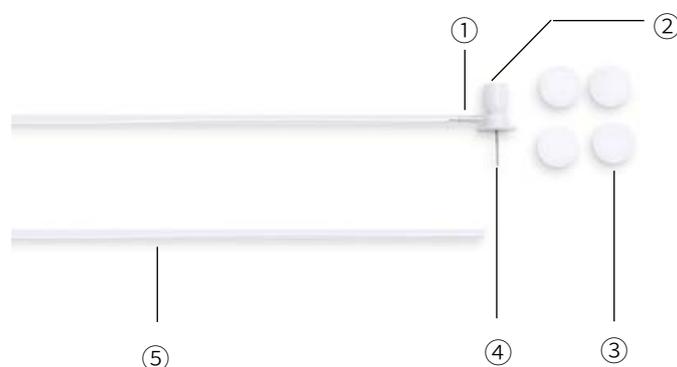
Kits	Brain Infusion Kit (1-3 mm)	Brain Infusion Kit (3-5 mm)	Catheter Delivery Kit
10 Brain Infusion Cannulae	√	√	×
10 PU Catheters	√	√	√
1 Filling Tube	√	√	√
40 Depth-Adjustment Spacers	√	√	×

Note: All contents are sterilized by a <sup>60</sup>Co radition and biocompatible. According to ISO11607-1 Standard and EN868-2, 3, 5 Standard, self-sealing sterilization pouch.

①ISO11607-1 Packaging for terminally sterilized medical devices Part 1 : Requirements for materials, sterile barrier systems and packaging systems.

②EN868-2,3,5 Packaging material for terminally sterilized medical devices Part 2,3,5.

## 3-Components



No.	Name	Description
①	Catheter Connector	Connect the catheter to the cannula
②	Brain Infusion Cannula	Placed on the target location
③	Depth-Adjustment Spacer	Adjust depths between the cannula and the target location
④	Stainless Steel Tube	Inserted into the target location and installed spacers
⑤	PU Catheter	Connect the cannula to the osmotic pump

## 4-Specifications

	Brain Infusion Kit (1-3 mm)	Brain Infusion Kit (3-5 mm)	Catheter Delivery Kit
Model	BIC-3	BIC-5	MIC
Packaging size	70 mm*240 mm	70 mm*240 mm	70 mm*240 mm
Quantity	10 Bags / Package	10 Bags / Package	10 Bags / Package
Material (cannula)	Acrylonitrile-styrene copolymer	Acrylonitrile-styrene copolymer	/
Volume inside cannula	0.15 $\mu$ l	0.18 $\mu$ l	/
Material (stainless steel tube)	Stainless steel	Stainless steel	/
Dimensions (stainless steel tube)	I.D.=0.14 mm; O.D.= 0.3 mm; length below pedestal=3 mm	ID=0.14 mm; OD=0.3 mm; length below pedestal=5 mm	/
Dimensions (catheter connector)	0.85 mm	0.85 mm	/
Material (spacer)	Acrylonitrile-styrene copolymer	Acrylonitrile-styrene copolymer	/
Dimensions (spacer)	0.5 mm	0.5 mm	/
Insertion depths (spacer)	1-3 mm	3-5 mm	/
Material (catheter)	Medical Polyurethane	Medical Polyurethane	Medical Polyurethane

Length (catheter)	15 cm (approximately)	15 cm (approximately)	15 cm (approximately)
Inside diameter (catheter)	0.7 mm( $\pm 0.08$ )	0.7 mm( $\pm 0.08$ )	0.7 mm( $\pm 0.08$ )
Outside diameter (catheter)	1.2 mm( $\pm 0.08$ )	1.2 mm( $\pm 0.08$ )	1.2 mm( $\pm 0.08$ )
Volume per 15 cm	56 $\mu$ L(3.7 $\mu$ L/cm)	56 $\mu$ L(3.7 $\mu$ L/cm)	56 $\mu$ L(3.7 $\mu$ L/cm)

## 5-Brain Infusion Kit Assembly

The following steps should be performed before anesthetizing animals and filling the osmotic pump.

- 1) Measure the depth between the surface of the brain and the target location. Choose depth-adjustment spacers. If the depth is 1-3 mm, choose Brain Infusion Kit (1-3 mm). If the depth is 3-5 mm, choose Brain Infusion Kit (3-5 mm).

The length of the stainless steel tube below pedestal of Brain Infusion Kit (1-3 mm) is 3 mm. The depth may be adjusted to 1mm by spacers. The length of the stainless steel tube below pedestal of Brain Infusion Kit (3-5 mm) is 5 mm. The depth may be adjusted to 3 mm by spacers.

- 2) Install spacers to the stainless steel tube of the cannula. Check whether the stainless steel tube is straight and at verticle angle to the cannula and spacers. Submerse the cannula in 70% ethanol for a few minutes and make sure the ethanol evaporates from the cannula before implantation.

 **Note!**

It is recommended to install no more than four spacers on the cannula. Otherwise the cannula will be too far away from the brain, affecting the stability of the cannula.

- 3) Measure the distance between the location of the cannula placed on and the site of the osmotic pump implanted into. To allow the brain and neck of the animal to move freely, cut the catheter to the length equals one and one-quarter distances.

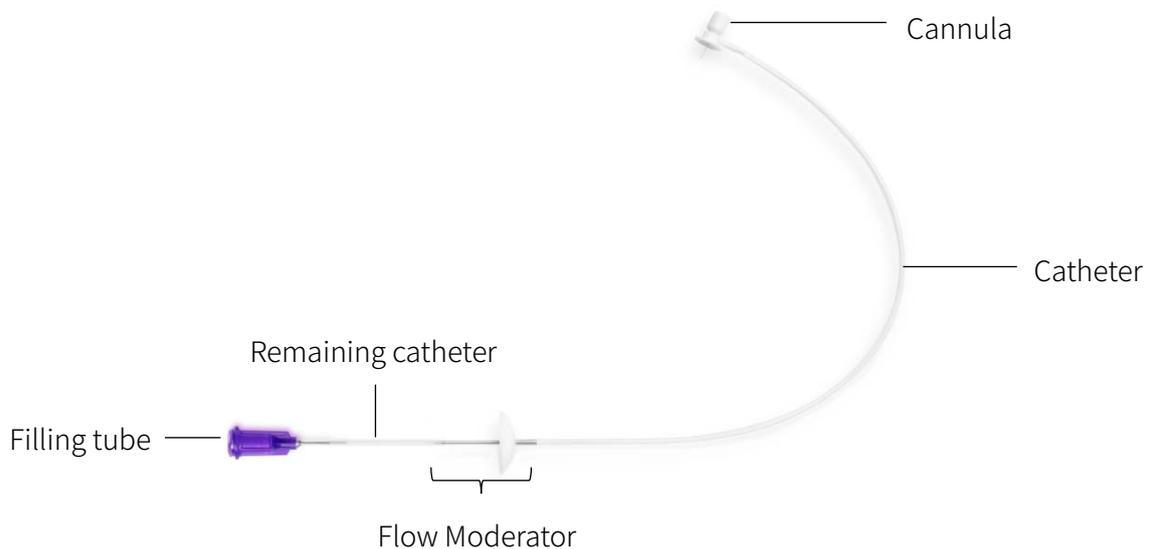
 **Note!**

The length of the catheter is 15 cm. The distance between the location of the cannula placed on and the site of the osmotic pump implanted into should not exceed 12 cm.

- 4) Connect one end of the catheter to the catheter connector and the other end to the shorter end of the flow moderator. Pull the catheter gently to make sure that both ends are tight.



- 5) Inject solutions into the syringe and then connect a filling tube to the syringe.
- 6) Connect one end of the remaining catheter cut in step 3) to the filling tube and the other end to the longer end of the flow moderator. The sequence is shown in the figure below. Fill solutions into the brain infusion kit by syringe. Remove the remaining catheter after finishing infusion.



- 7) Fill the osmotic pump with solutions. The filling volume is not less than the reservoir volume specified in the instructions. Refer to **RWD Osmotic Pump User Manual**.
- 8) RWD recommends that the pump should be submersed in 0.9% saline at 37°C for the duration to reduce the possibility of blockage in the catheter. The duration for each model refers to **RWD Osmotic Pump User Manual**.
- 9) Connect the osmotic pump to the longer end of the flow moderator. The osmotic pump and the brain infusion kit should be fully filled with solutions and free of bubbles.

## 6-Catheter Delivery Kit Assembly

The following steps should be performed before anesthetizing animals and filling the osmotic pump.

- 1) Measure the distance between the site of osmotic pump implanted and the target location.
- 2) Cut the catheter to the distance measured in step 1) and connect a stainless steel tube or a flow moderator at one end of the catheter. When connecting a stainless steel tube, the

catheter should completely wrap the stainless steel tube (about 3 mm). When connecting a flow moderator, the catheter should completely wrap the shorter end of the flow moderator.

- 3) Use a syringe and a filling tube to fill catheter. Fill from the end without anything connected of the catheter. After infusion, the syringe should be left on the catheter without removing it.



- 4) Fill the osmotic pump with solutions. The filling volume is not less than the reservoir volume for each model specified in the instructions. Refer to **RWD Osmotic Pump User Manual**.
- 5) RWD recommends that the pump should be submersed in 0.9% saline at 37°C for the duration to reduce the possibility of blockage in the catheter. The duration for each model refers to **RWD Osmotic Pump User Manual**.
- 6) The stainless steel tube or the longer end of the flow moderator should be fully inserted into the osmotic pump and be tightly connected. Make sure that the catheter is flush with the surface of the osmotic pump and stainless steel tube is not exposed. Remove the syringe from the other end of the catheter at this time.

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