

# Safe and Precise Untethered Stent Delivery

## Intravascular Magnetic Robot Actuated by Magnetic Navigation System

### TECHNICAL FEATURES

#### Magnetic Navigation System

- Is composed of three orthogonal pairs of electromagnetic coils
- Generates **three-dimensional uniform magnetic field** by controlling the applied current
- Enables the operator to control the untethered intravascular magnetic robot in real time

#### Intravascular Magnetic Robot

- Is composed of crawling module, magnetic pulley module, and drill tip
- Generates several independent motions to perform the **stent delivery**
  - Crawling motion : **navigation**
  - Drilling motion : **unclogging**
  - Uncovering motion : **stent deployment**

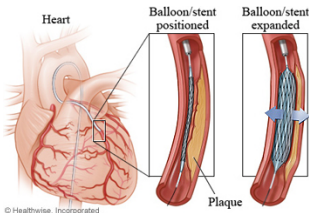
#### Enhanced Safety for Medical Doctors

- Medical doctors are exposed to radiation hazard inevitably in conventional tethered operation (Increased cancer, cataracts and orthopedic risks)
- Since the untethered stent delivery enables the remote operation, the doctors are **free from radiation hazard**

#### Precise Stent Delivery for Patients

- Stent delivery is dependent mostly on the skills and experiences of the medical doctors as conventional tethered catheters have low steering ability and controllability
- Position and orientation of the intravascular magnetic robot can be precisely manipulated by the magnetic navigation system
- With the intravascular magnetic robot, the untethered stent delivery can be performed **more precisely** and **less dependent on the doctor's skills or experiences**

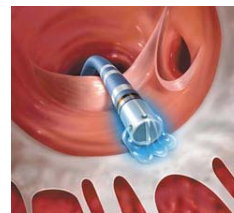
### APPLICATIONS



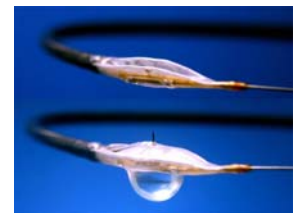
Coronary Intervention



Capsule Endoscopy



Magnetic Catheter



Selective Drug Delivery

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