

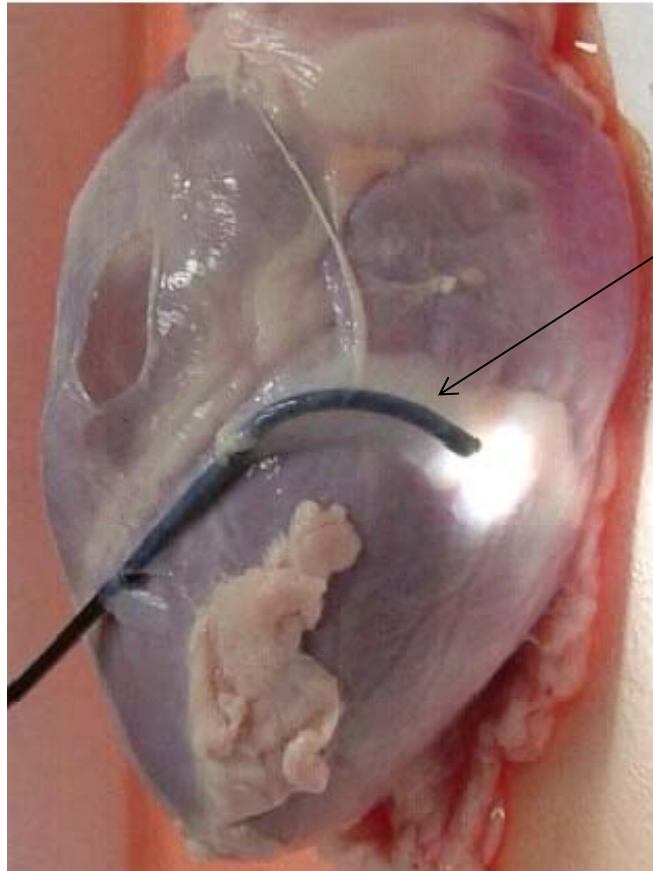
New Devices to Enter the Pericardium and Intrapericardial Navigation

AttachLifter und AttachGuider

Heinz Rupp

Philipps University Marburg
Heart Center, Department of Internal Medicine - Cardiology
Marburg, Germany





Pericardial sac:

A cavity, not a tube such as the intestine

**Intrapericardial navigation:
conventional endoscope/fiberscope has crucial limitations**

**Novel device developed:
AttachGuider**

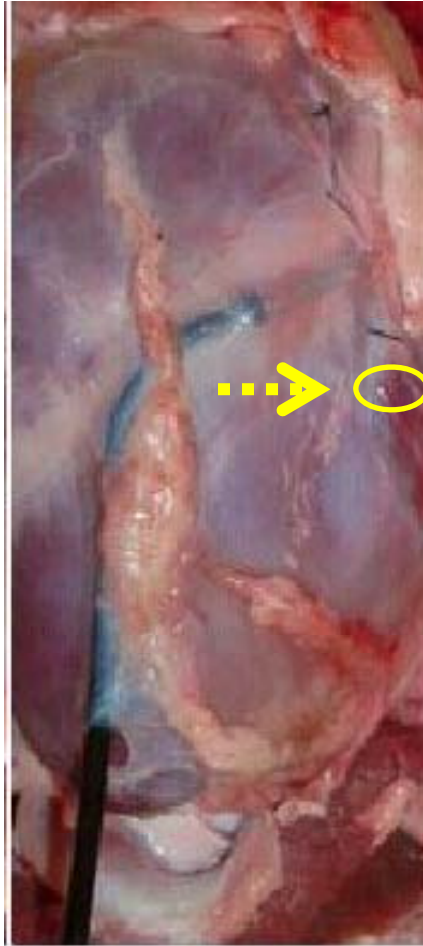
**„Arrangement for guiding instruments in cavities“
PCT/DE 2006/002116**

**Cavity
Pericardial sac**



Yellow marks target

**No deflecting wall at
required position**



**No movement
to the right, only upward
until wall reached,
target missed**

Deflecting wall



Target missed

„Arrangement for guiding instruments in cavities“

PCT/DE 2006/002116

(WO/2007/062632) ARRANGEMENT FOR GUIDING INSTRUMENTS IN CAVITIES

Rupp H (42%)
Maisch B (38%)
Rupp TP (20%)

for e.g.
intrapericardial
navigation

Biblio. Data

Description

Claims

National Phase

Notices

Documents

Latest bibliographic data on file with the International Bureau

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Applicants: PHILIPPS-UNIVERSITÄT MARBURG [DE/DE]; Biegenstr. 10, 35037 Marburg (DE) (All Except US).
MAISCH, Bernhard [DE/DE]; Feldbergstrasse 45, 35043 Marburg (DE) (US Only).
RUPP, Heinz [DE/DE]; Forsthausstrasse 6, 35043 Marburg (DE) (US Only).
RUPP, Thomas, Philipp [DE/DE]; Cappeler Str. 12 D, 35039 Marburg (DE) (US Only).

Inventors: MAISCH, Bernhard [DE/DE]; Feldbergstrasse 45, 35043 Marburg (DE).
RUPP, Heinz [DE/DE]; Forsthausstrasse 6, 35043 Marburg (DE).
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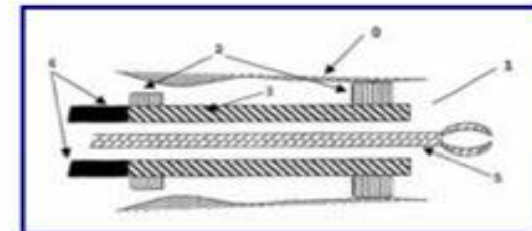
Agent: RIECHERT, Anne; Oskar-von-Miller-Strasse 20, 60314 Frankfurt (DE).

Priority Data: 10 2005 057 479.3 30.11.2005 DE

Title: (EN) ARRANGEMENT FOR GUIDING INSTRUMENTS IN CAVITIES
(DE) ANORDNUNG ZUR FÜHRUNG VON INSTRUMENTEN IN HOHLRÄUMEN

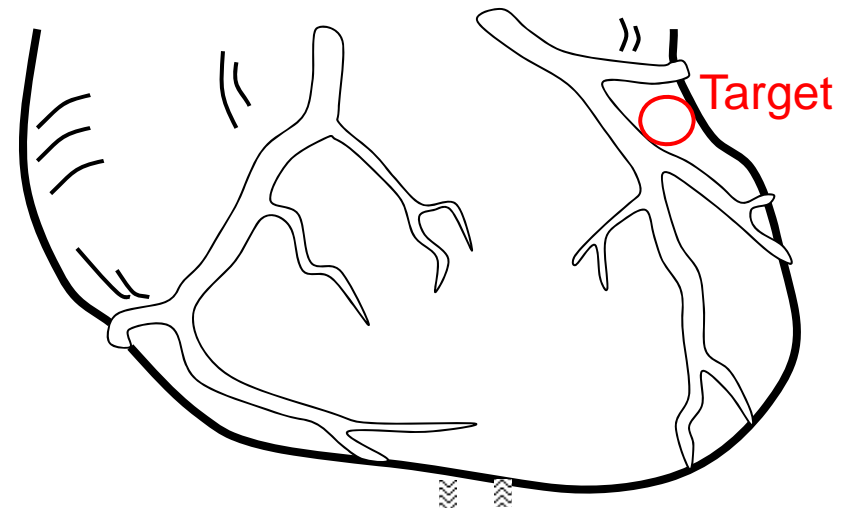
Abstract: (EN) The invention relates to an arrangement which can be fixed to the inside of a cavity by means of fixing means which are associated with said arrangement. Said fixing means fix the arrangement in relation to at least one part of the wall of the cavity which is to be examined, wherein the arrangement must at least partially be inserted. Said arrangement enables the instruments, which are used to examine/manipulate cavities, even when the arrangement and/or the instrument is displaced in a translatory and/or rotational manner, in particular, in angled cavities, to be guided in a reliable manner.

(DE) Die Erfindung betrifft eine Anordnung, welche eine Fixierung der Anordnung innerhalb eines Hohlraumes durch der Anordnung zugeordnete Fixierungsmittel ermöglicht. Die Fixierungsmittel sorgen dabei für eine Fixierung der Anordnung relativ zu mindestens einem Teil der Wandung des zu

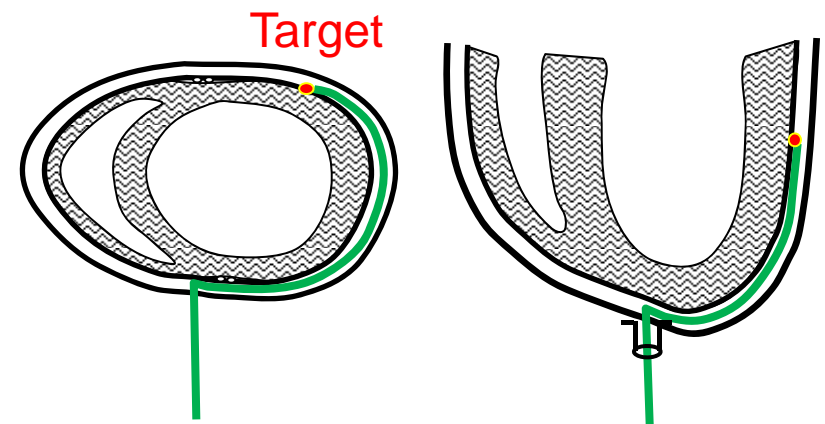


together with Dr. Peter Stumpf, TransMIT, Giessen

Intrapericardial Navigation with the AttachGuider and Visualization



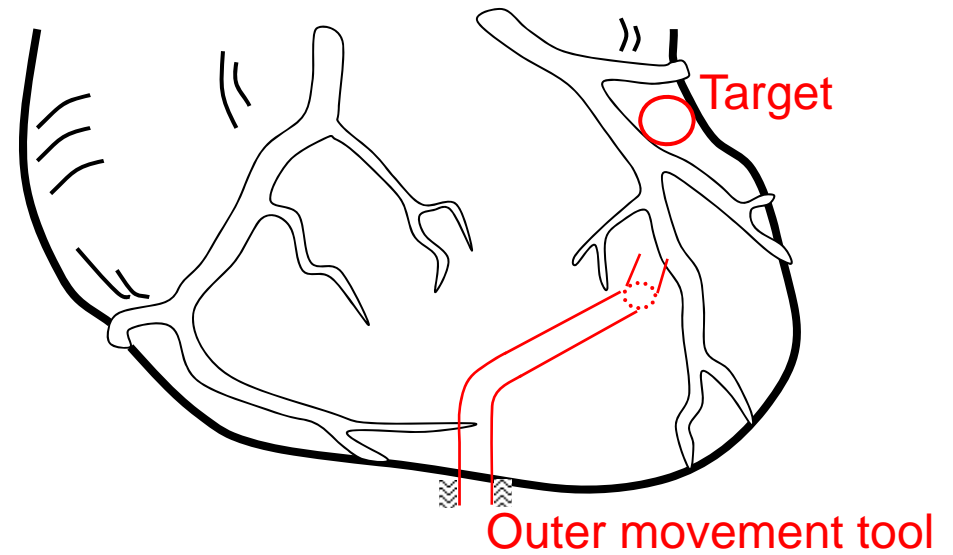
Mapping for e.g.
epicardial VT / VF ablations
with visualization



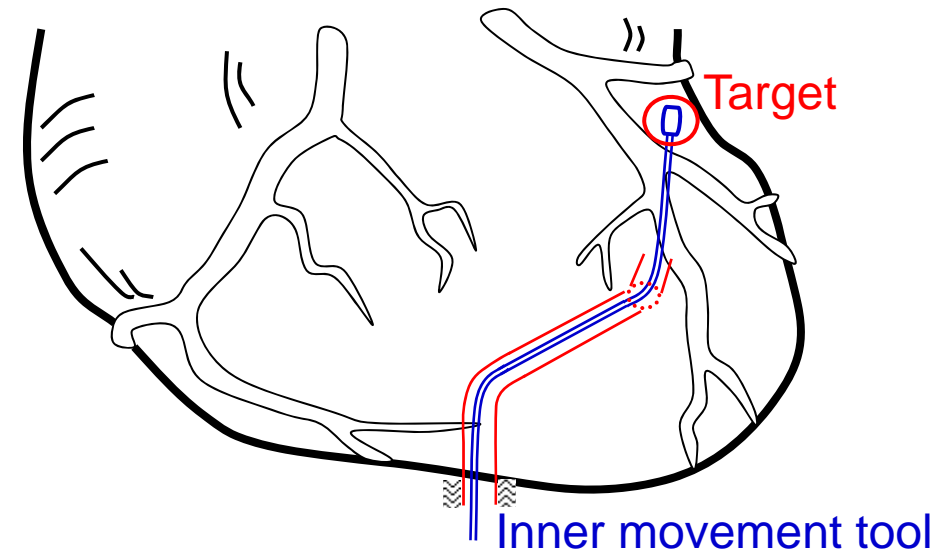
AttachGuider

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Attachguider:
repetitive movement of
„inner movement“ and
„outer movement“ tool



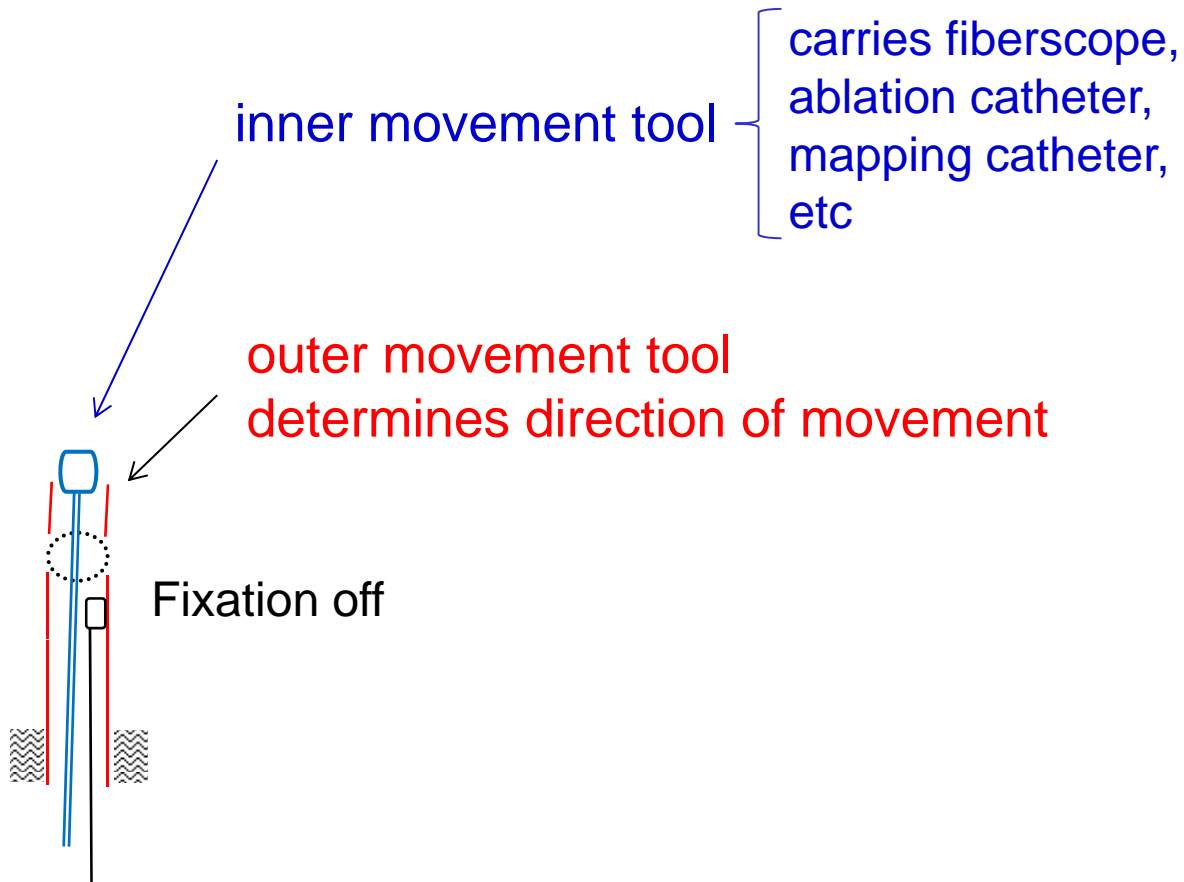
Intrapericardial Navigation with the AttachGuider and Visualization



Attachguider:
repetitive movement of
„inner movement“ and
„outer movement“ tool

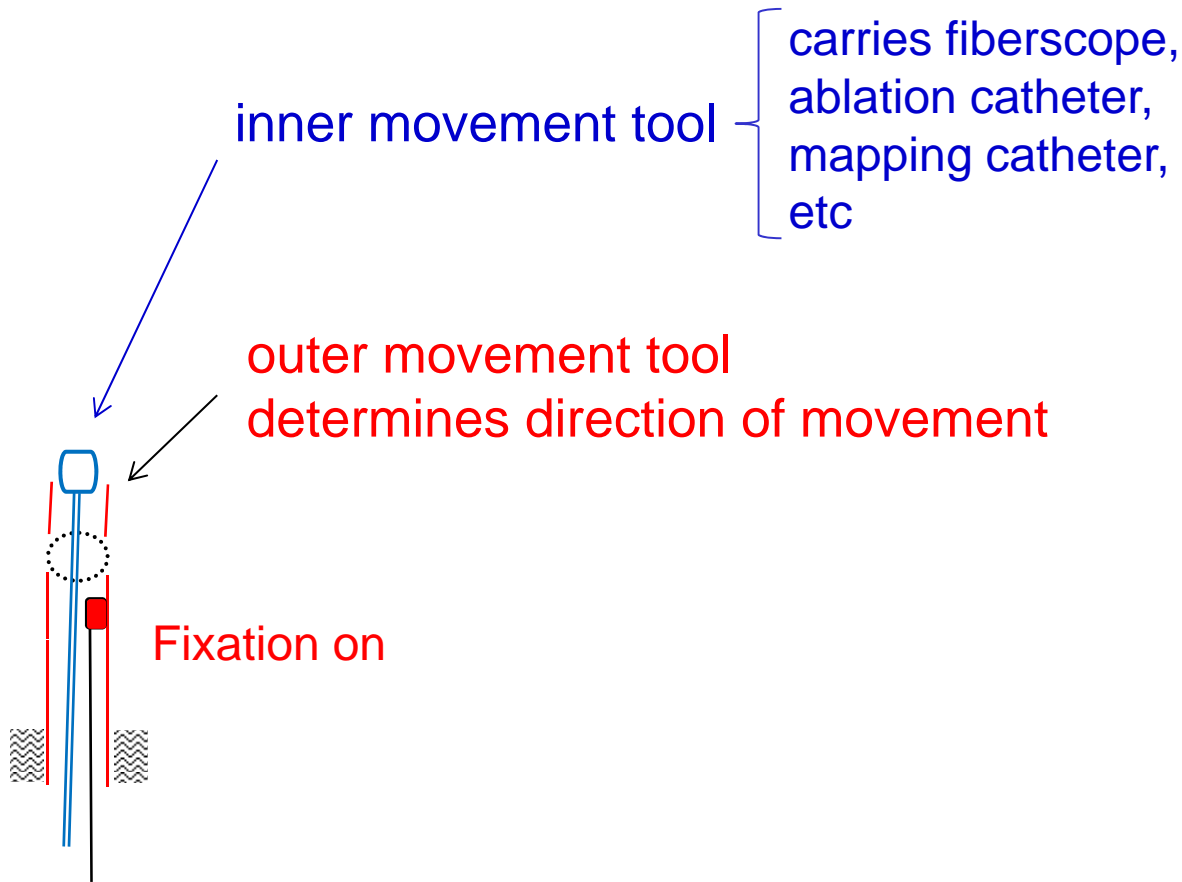
AttachGuider

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AttachGuider

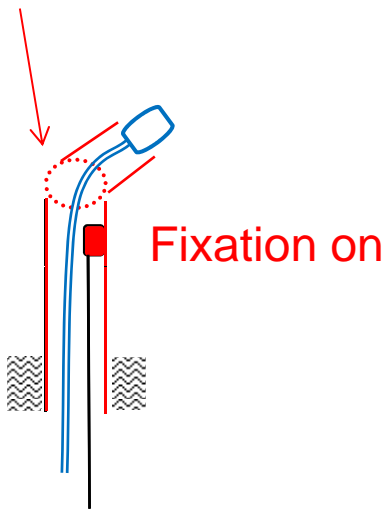
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AttachGuider

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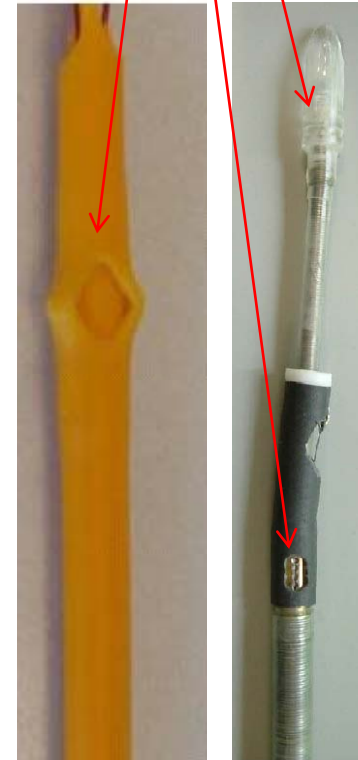
Hinge on outer tool, determines direction of movement



Balloon and hinge



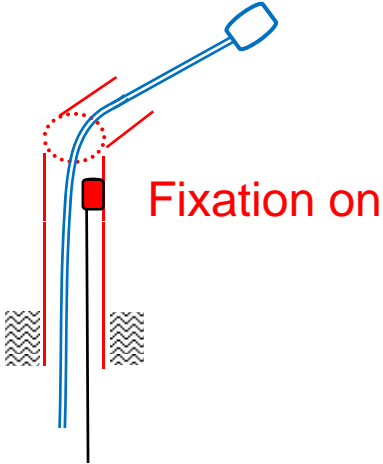
Suction heads



Modes of fixation
prototypes

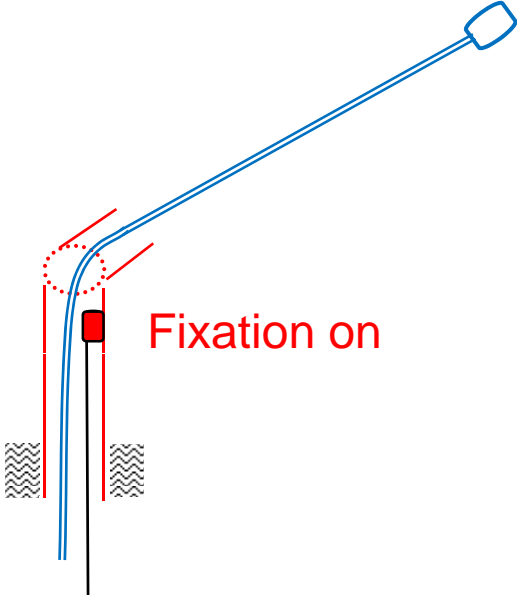
AttachGuider

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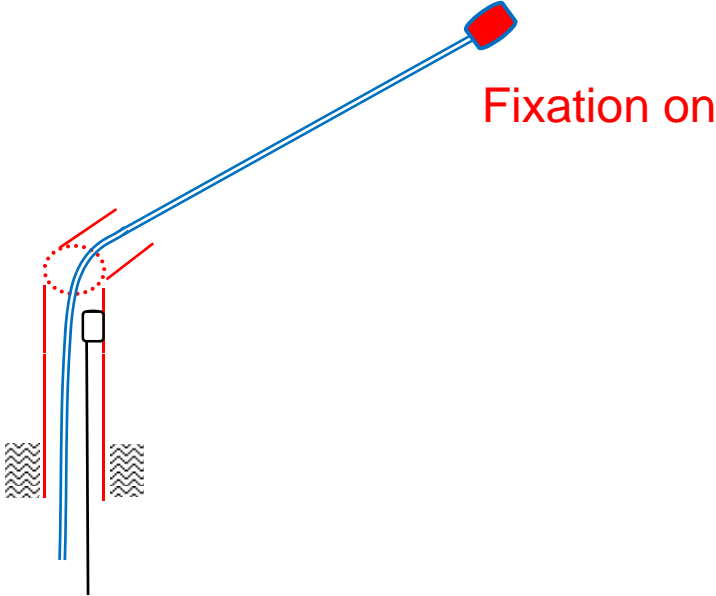
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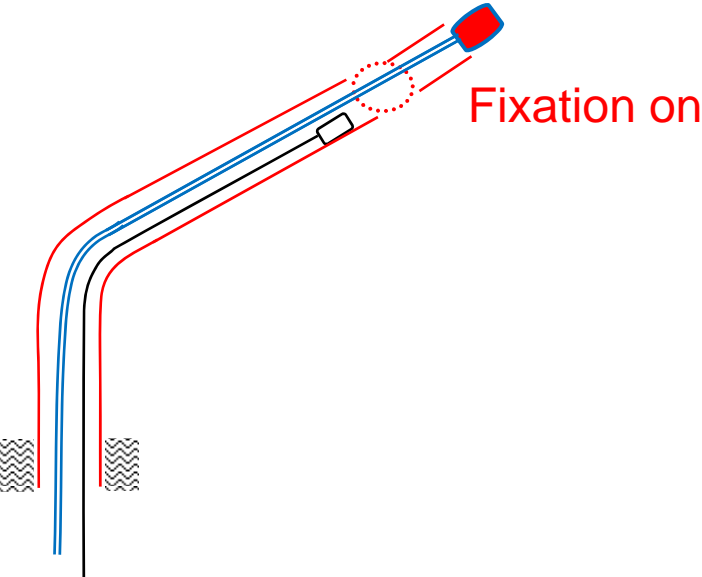
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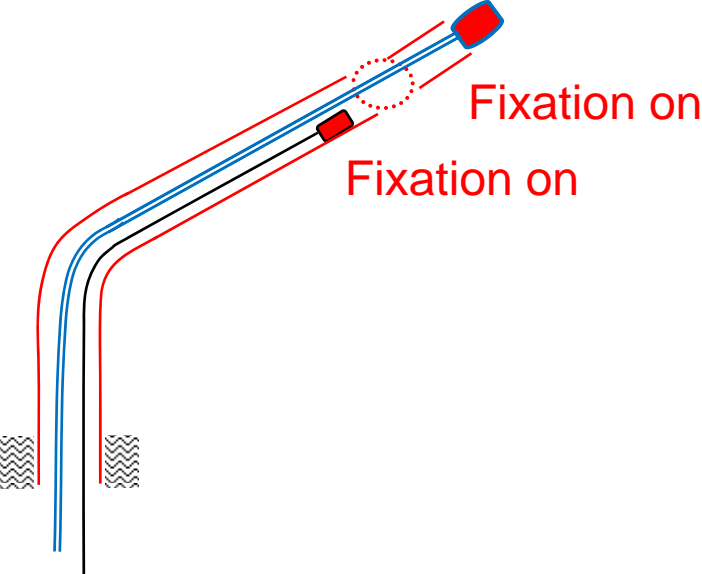
AttachGuider

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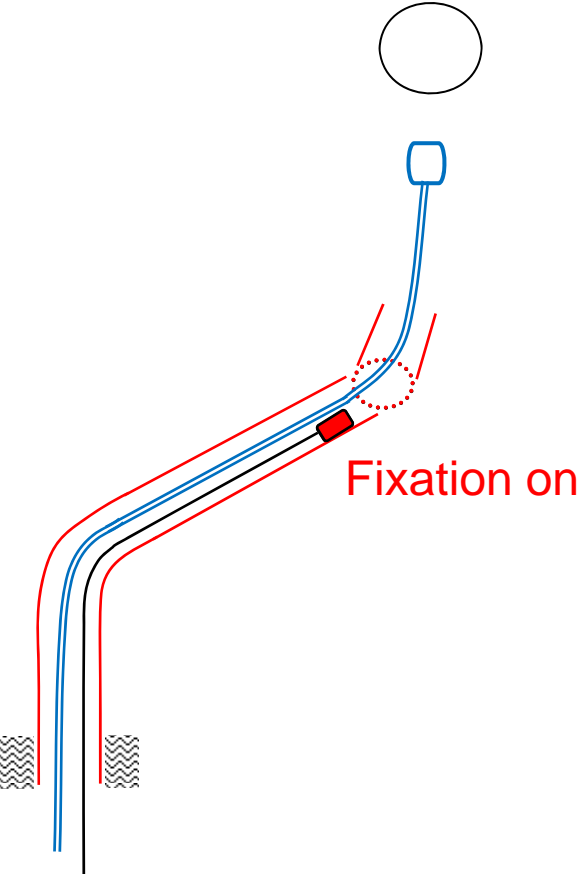
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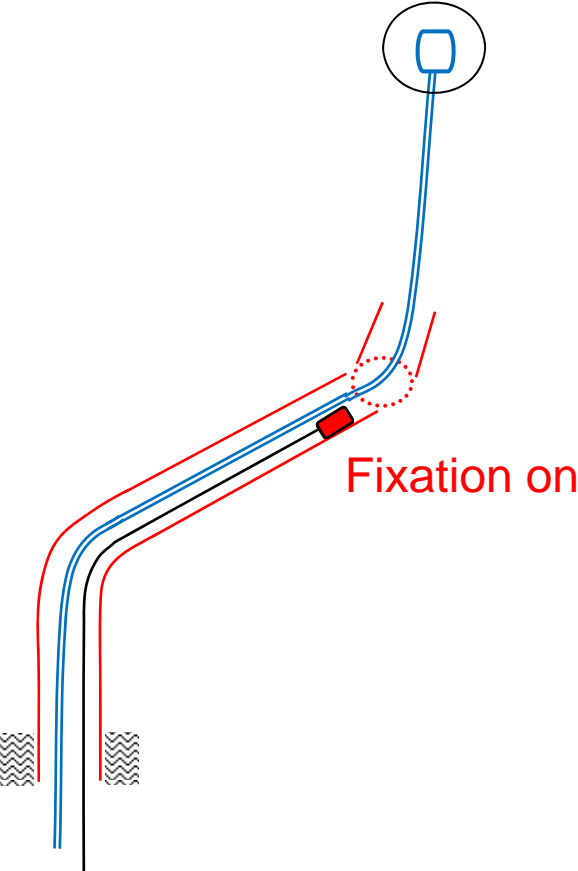
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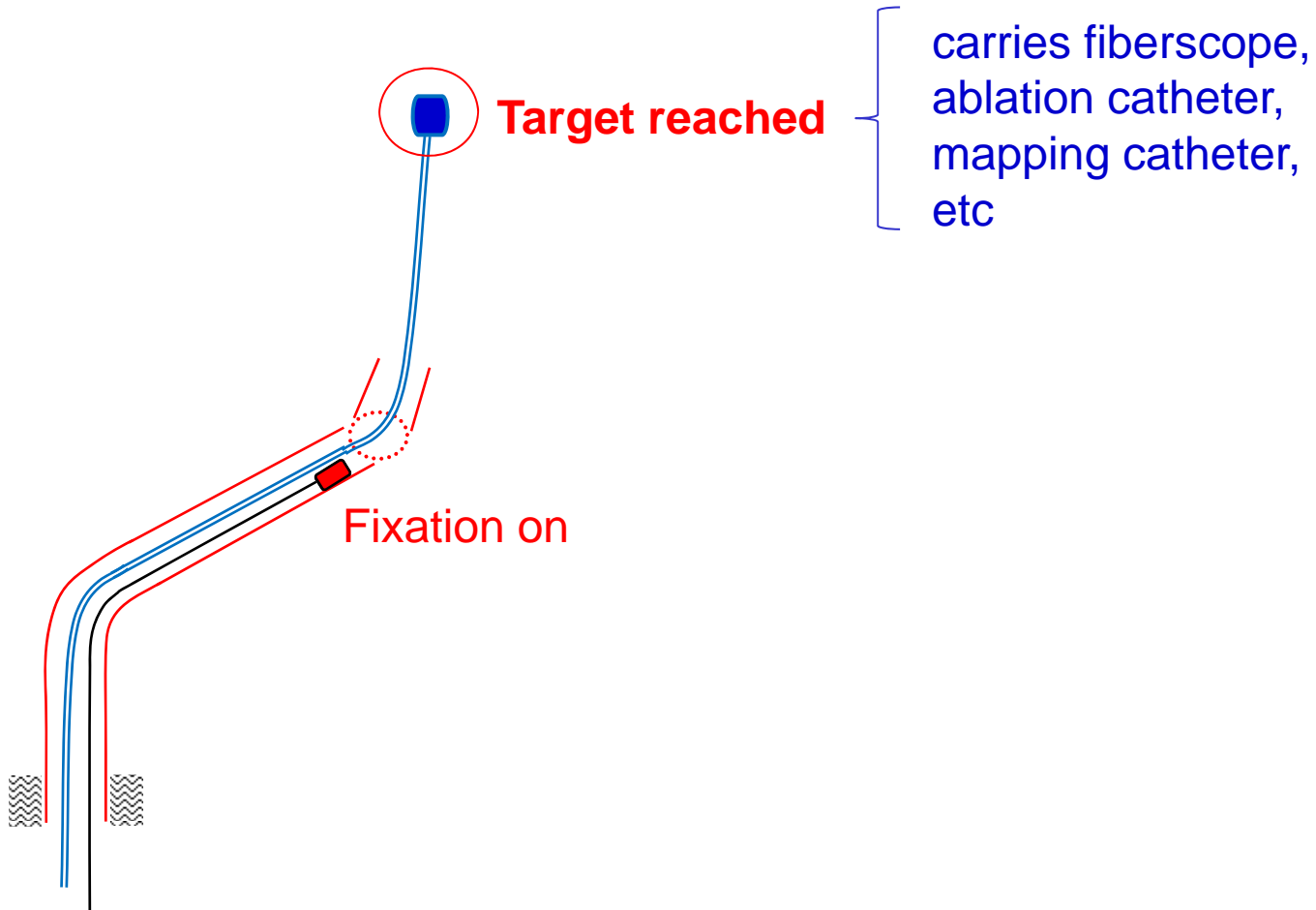
AttachGuider

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AttachGuider

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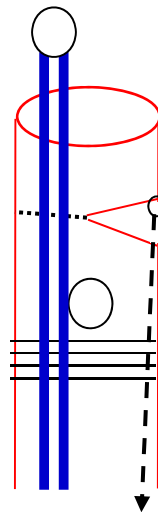


AttachGuider modes: for intrapericardial movement and navigation



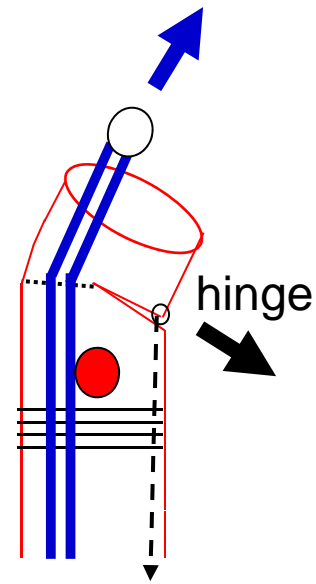
Fixation display

Starting



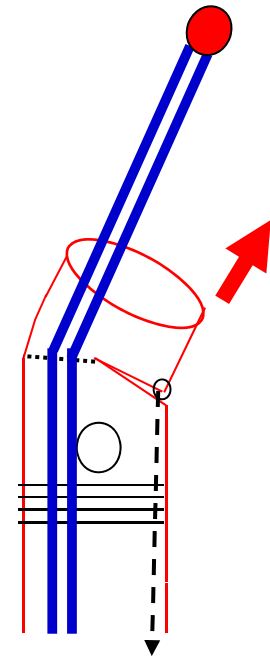
No fixation

Move inner tool



Fixation of
outer tool

Move outer tool



Fixation of
inner tool

AttachGuider

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AttachGuider modes: for intracardiac movement and navigation

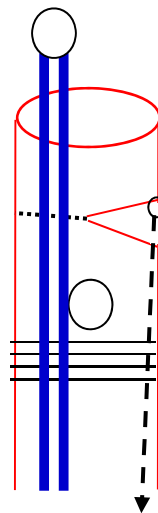


Control and monitoring of fixation of inner and outer movement tools

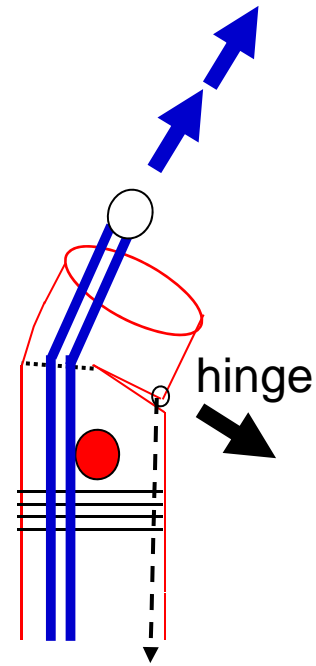
Starting

Move inner tool

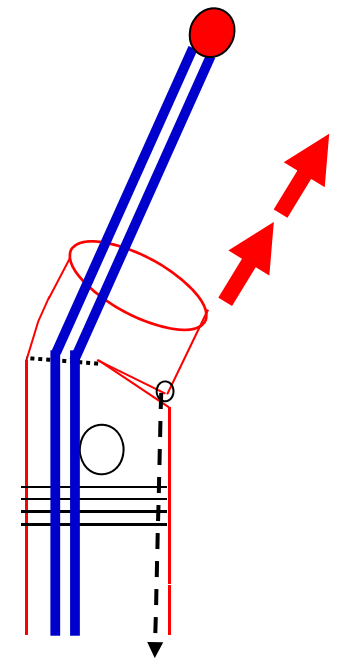
Move outer tool



No fixation



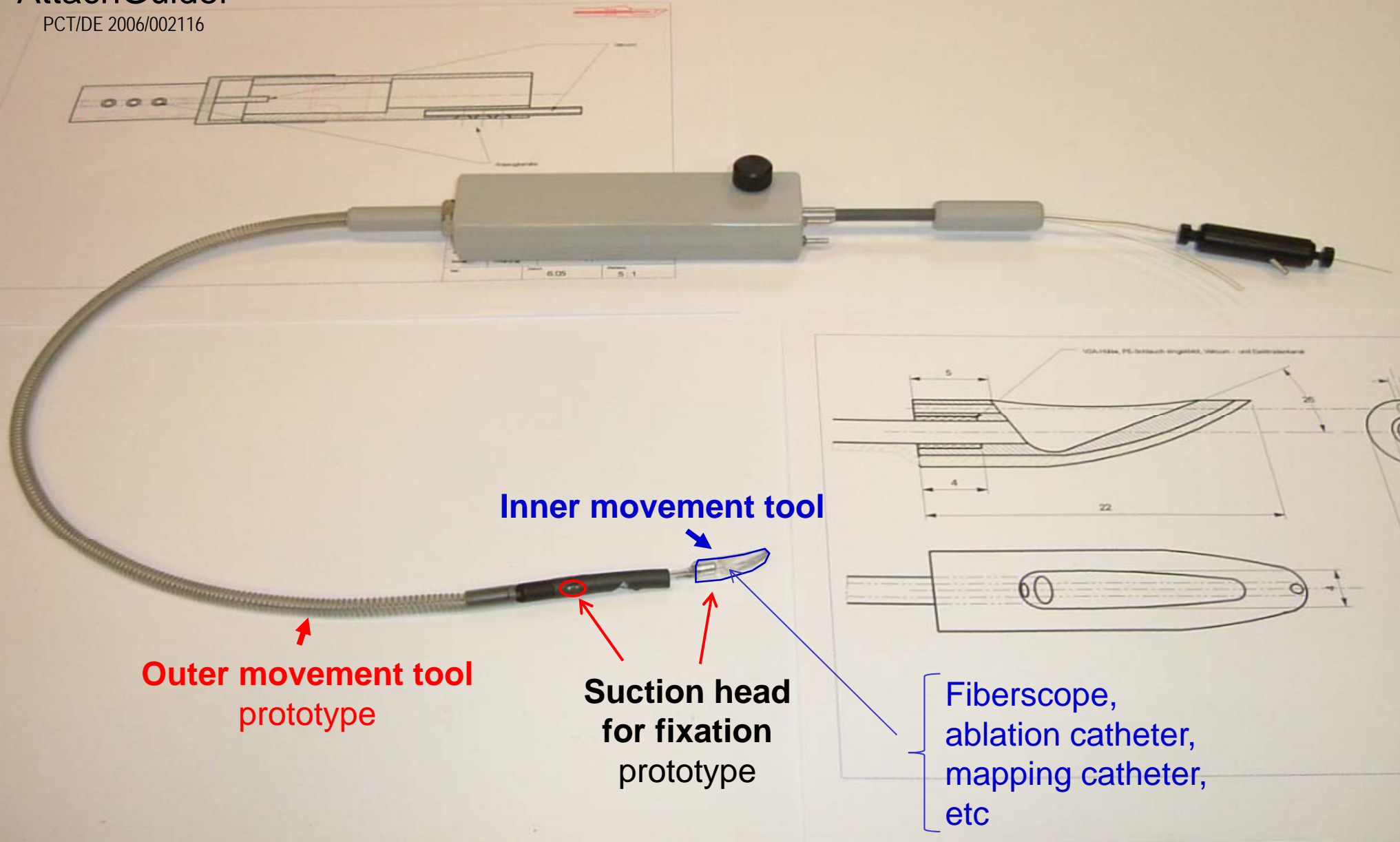
Fixation of outer tool



Fixation of inner tool

AttachGuider

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**Outer movement tool
prototype**

Inner movement tool

**Suction head
for fixation
prototype**

Fiberscope,
ablation catheter,
mapping catheter,
etc

AttachGuider

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Inner movement tool

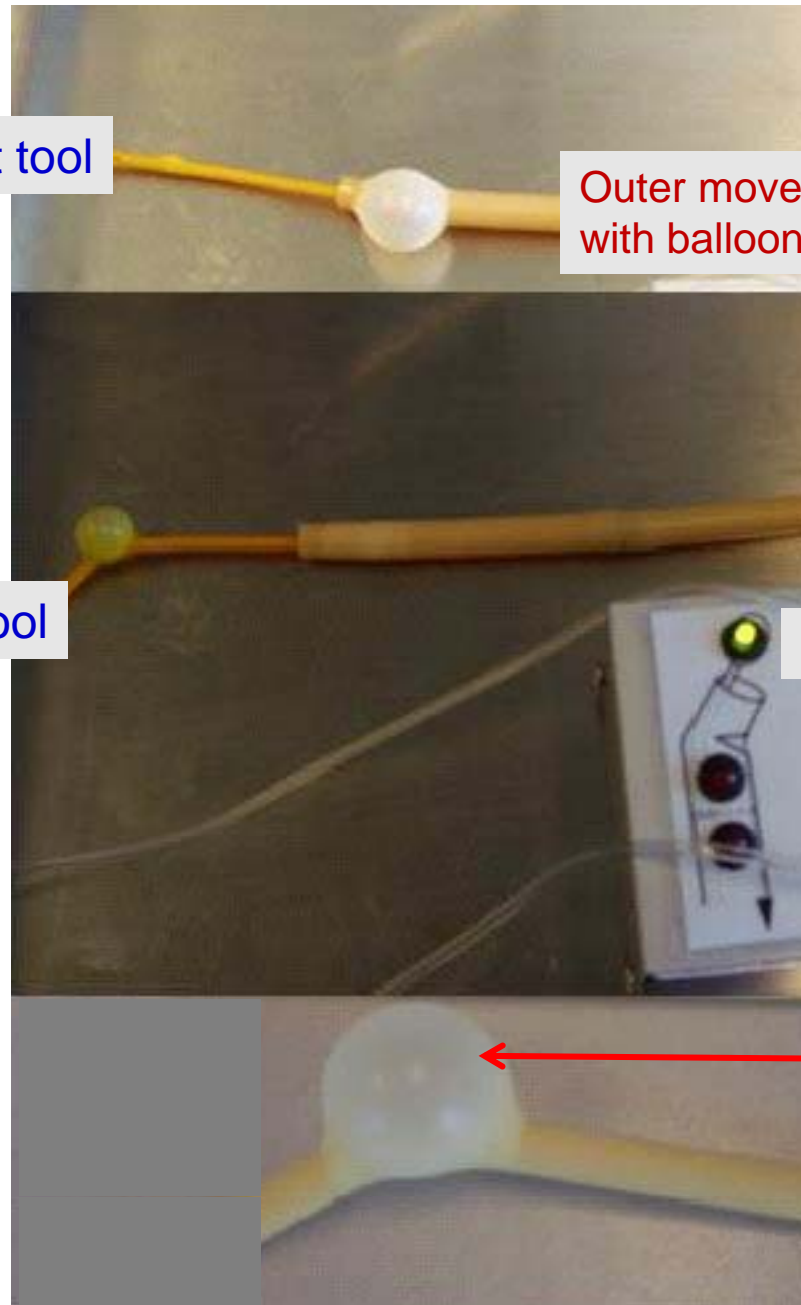
carries fiberscope,
ablation catheter,
mapping catheter,
etc

Outer movement tool
with balloon for fixation in e.g. pericardial space

Inner movement tool

Display unit

Balloon for fixation and hinge for
change in direction of movement



Prototypes

Take Home Messages

AttachGuider

- Novel and different from conventional flexible endoscopes
- Guidance of instruments or fiberscopes in 3D cavities
- Intrapericardial navigation for e.g. epicardial mapping
- Gastrointestinal applications
- In-licensing partner ...

Take Home Messages

AttachLifter

- Novel tool, does not require advanced production techniques
- „Door opener“ for pericardial space without effusion
- Medical need, e.g. ablations of epicardial VT/VF, not only for channelopathies (e.g. Brugada)
- Visualization with endoscope decisive
- In-licensing partner ...

H. Rupp¹ · T.P. Rupp^{1, 2} · P. Alter³ · N. Jung¹ · S. Pankuweit³ · B. Maisch³

¹ Department of Internal Medicine – Cardiology, Experimental
Cardiology Laboratory, Philipps University of Marburg, Marburg

² Department of Surgery, Klinikum Fulda, Fulda

³ Department of Internal Medicine – Cardiology, UKGM GmbH, Marburg

Intrapericardial procedures for cardiac regeneration by stem cells

Need for minimal invasive access
(AttachLifter) to the normal pericardial cavity