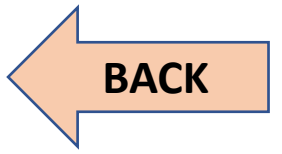


# Device alternatives for interventions in pediatric cardiology and congenital heart disease

The following file contains information about different devices and especially device alternatives for interventional procedures in pediatric cardiology and congenital heart disease. The information is continuously collected from members of the Interventional WG of the AEPC following an initiative of the Council of the WG. It represents personal experiences of the users and does not contain any recommendations of the interventional WG of the AEPC. The interventional WG of the AEPC does not take any responsibility about the information in this file.

- Stents
- Sheaths
- Catheters
- Balloons
- Devices
- Others



# Stents

## Bare metal coronary stents

- [Avantgarde](#)

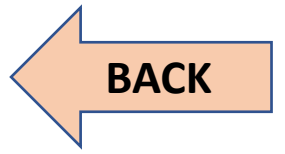
## Brands

- Alternatives to Formula:
  - [Palmaz blue](#)
  - [Palmaz Genesis](#)
  - [VBX Balloon expandable](#)
  - [Besmooth](#)
  - [RX Herculink Elite](#)
- Alternatives to ev3:
  - [Optimus](#)
  - [Numed CP](#)
  - [Bentley Graft aortic](#)

## Sizes

- [2,25-4,5](#)
- [4-10 mm](#)
- [6-18 mm](#)
- [10-24 mm](#)

# Bare metal coronary stents not drug eluting

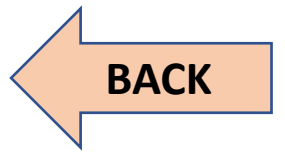


- Avantgarde
  - [Alvimedica](#)
  - 2,25-4,5 mm diameter
  - 8-31 length
  - 5F GC, 0,014 guidewire

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# Premounted stents – 4-10mm

## alternatives to Cook Formula Stents



- Palmaz Blue
  - [Cordis](#)
  - 4-7mm diameter
  - 10-24 length
  - 5F sheath, 0,014 or 0,018 guidewire
  - Can be overdilated more than mentioned in the brochure
  - fractures at 10mm

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- Palmaz Genesis
  - [Cordis](#)
  - diameter: 5-10 mm
  - Length: 17-80 mm
  - Sheath: 6-7 F
  - Recommended inflation pressure : 8 atm

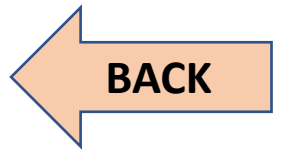
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- VBX Balloon Expandable
  - [Gore](#)
  - Covered stents
  - Size: 5-11 mm
  - Length: 15-79 mm
  - Post-dilated diameter ~ +5 mm
  - Sheath max 8 Fr

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# Premounted stents – 4-10mm

## alternatives to Cook Formula Stents



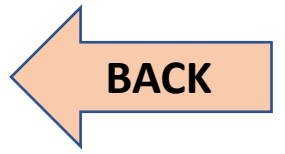
- Besmooth
- [Bentley InnoMed Hechigen](#)
- Diameter 5-10 mm
- Length 18-56 mm
- Premounted
- Flexible
- Low profile 6 Fr
- Failure to post dilate beyond 12mm

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- RX Herculink Elite
  - [Abbott](#)
- Diameter 4-7 mm
- Length 12-15-18mm
- Co Cr stent
- 6 Fr sheath
- ? redilatable

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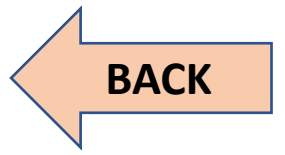
# Balloon expandable stents – 6-30mm alternatives to EV3 MegaLD and MaxLD



## Optimus L, XL, XXL

- [Andratec](#)
- Dilatable from 6 up to 20mm (L), 24 (XL) and 30 (XXL)mm
- Sheath=balloon+1F
- Different lengths
- Covered version available as well

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## Balloon expandable stents – 6-30mm

### Numed

- CP stent 8 Zig
  - Size: 12-24 mm,
  - Stent length: 16-60 mm
- CP stent 10 zig
  - Size: 26-30 mm
  - Stent length: 39-60 mm
- Sheath = balloon +2F
- Considerable capacity for expansion
- Covered version available

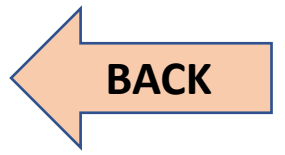
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### BeGraft aortic

- Bentley
- Premounted covered stent (ePTFE)
- Size: 12-24mm
  - At nominal pressure 12, 14 mm->max. diameter 20 mm;
  - At nominal pressure 16, 18 mm-> max. diameter 24 mm
  - At nominal pressure 20, 22, 24 mm-> max. diameter 30 mm
- Length: 19-59 mm
- Sheath: Ø 12 mm -> 9F; Ø 14, 16 mm -> 11 F; Ø 18, 20, 22, 24 mm-> 14 F

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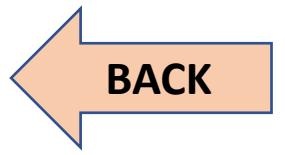




# Long sheaths 6-26F

## Models

- [Dryseal](#)
- [Flexor](#)
- [Destination](#)
- [D`Vill](#)
- [Fortress](#)



# Long sheaths 6-26F

## Dryseal

- [Gore](#)
- Sizes 10-26F, increment 2F
- Length 33 and 65 cm
- Good manoeuvrability
- Minimal shoulder between dilator and sheath
- Requires 0.035 guidewire

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## • Flexor Check-Flo<sup>®</sup> Valve

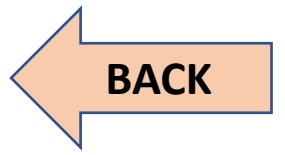
- [Cook](#)
- Size: 4-12 Fr
- Length: 45-55-70-90-110 mm.
- Accepts wire: 0.018/0.035
- Tip Configuration: straight/multipurpose
- Good manoeuvrability

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## • Destination<sup>™</sup> Guiding Sheath

- [Terumo](#)
- Fr: 5-8 Fr
- Length: 45-65-90 mm.
- Maximum guidewire size: 0.035
- Reinforcement inside the sheath with stainless steel coil
- Tip Configuration:
  - Straight
  - Hockey Stick
  - Multipurpose
  - RDC
  - LIMA

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## Long sheaths 6-26F

### D'VILL™ Introducer

- [Brown](#)
- Long length
- Size: 12-14Fr
- Length: 30cm, 65cm, and 85cm
- Good manoeuvrability

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### APT long sheath

- [APT Medical](#)
- Size: 4-20Fr

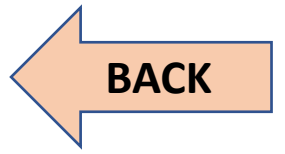
guiti.milani@gmail.com

### Fortress

- [Biotronic](#)
- Size: 4-8Fr
- Length: 45, 65, 90 cm
- Reinforced
- Relatively stiff dilator
- Very good manoeuvrability, especially over a balloon

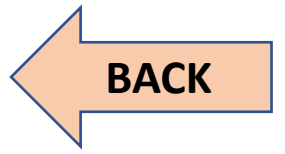
Joerg.Michel@med.uni-tuebingen.de

# Catheters



## Types

- [Wedge](#)



# Wedge catheters

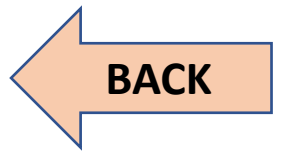
## alternatives to Arrow Wedge Catheter

### Corodyn P1

- [Brown](#)
- Wedge Pressure
- Balloon Flotation Catheter
- Single Pressure Lumen
- Sizes 5, 6, and 7Fr

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# Balloons



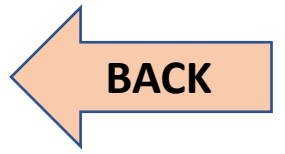
## Models

- [Numed Rashkind Balloons](#)
- [Z-Med](#)
- [BiB](#)
- [AltoSa](#)
- [Atlas Gold](#)
- [Dorado](#)
- [Conquest](#)
- [Athletis](#)
- [True Dilatation](#)
- [Cristal](#)
- [Advance LP](#)
- [Mustang](#)
- [Wolverine](#)
- [Angiosculpt](#)
- [Agent](#)
- [In.pact Admiral](#)
- [Armada](#)
- [Euca PW](#)

## Types

- [Rashkind Balloons](#)
- [Stent implantation](#)
- [High pressure](#)
- [Ultrahigh pressure](#)
  - <12mm
  - >12mm
- [Cutting balloons](#)
- [Drug coated balloons](#)

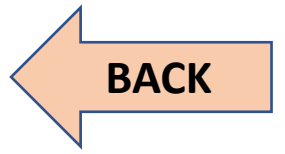
# Rashkind Balloons



- NuMed Z5 and Z6
- Over the wire, but can be used without
- 9,5mm and 13,5mm
- Non compliant
- 6F sheath
- Balloon deflation sometimes incomplete-cave sheath!

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# Balloons for stent implantation



- Z-med
  - [Numed](#)
  - 2-40mm diameter
  - 2-8cm length
  - Profile starting from 6F

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- BiB
  - [Numed](#)
  - Balloon-in-balloon
  - 12-30mm diameter
  - 2,5-6,5cm length
  - Profile starting from 8F
  - Inner balloon 50% from outer

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- AltoSa
  - [Andratec](#)
  - 12-30mm diameter
  - 2-6cm length
  - Low profile starting from 7F

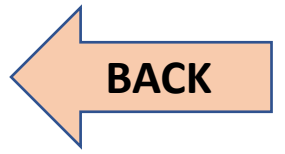
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- Gemini AltoSa
  - [Andratec](#)
  - Balloon-in-balloon
  - 14-30mm diameter
  - 3-6cm length
  - Profile 8-12F
  - Inner balloon about 60% from outer

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# High- and ultrahigh pressure balloons



## Atlas Gold

- [Becton Dickinson](#)
- Kevlar balloon
- 12-26mm
- Up to 18 Bar (off label more, ruptures punctually)

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## Dorado

- [Becton Dickinson](#)
- Wooven balloon
- 3-10mm

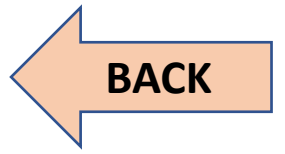
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## Conquest

- [Becton Dickinson](#)
- Wooven balloon
- 6-10mm
- Up to 40 bar

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# High- and ultrahigh pressure balloons



## Athletis

- [Boston Scientific](#)
- Kevlar balloon
- 4-12mm
- Up to 40 Bar

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## True Dilatation

- [Becton Dickinson](#)
- 18-28mm

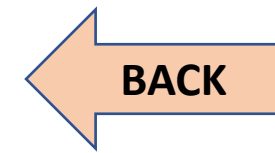
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## Cristal Balloon

- [Balt](#)
- 12-28mm
- Up to 10 bar
- Semi-compliant
- Low profile
- Size: 8-20 mm
- Length: 20-40 mm
- Sheath: 6-9 Fr

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# High pressure balloons 4-12mm



## Advance 14LP

- 0.014, 2-4mm/2-20cm, 4 F

## Advance 18LP

- 0.018, 4-9mm/2-20 cm, 5-6 Fr

## Advance 35LP

- 0.035, 3-12mm/2-20 cm, 5-7 Fr
- [Cook](#)
- Up to 14 bar

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## Mustang balloon

- [Boston Scientific](#)
- Wire: 0.035
- Size: 3-12 mm
- Length: 2-10 cm
- Sheath: 5-7 F
- High pressure balloon (up to 24 atm)
- Good for stent implantation

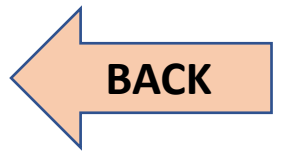
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## Armada balloon

- [Abbott](#)
- Diameter 3-14mm
- Length 20-250 mm
- 5-7 Fr sheath
- Catheter length 80-135 cm
- Nominal pressure 6-9 ATM
- Burst pressure 10-20 ATM

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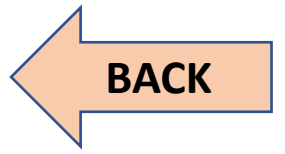
# High pressure balloons 4-12mm



Euca PW

- [Elaine Medical](#)
- Diameter 4-12 mm
- Length 20-200mm
- 5-7 Fr
- PTA balloon
- OTW 0.035

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# Cutting balloons

## Wolverine

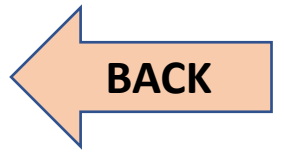
- [Boston Scientific](#)
- Blade Length: 6/10/15 mm
- Size: 2-4 mm

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## Angiosculpt

- [Philips](#)
- Size: 2-8 mm
- Length: 10-200 mm
- Sheath: 5/6F
- Wire: 0.014/0.018

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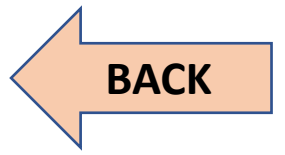


# Drug coated balloons

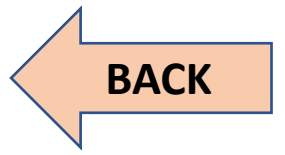
- AGENT™, Boston Scientific
  - Size: 2-4 mm
  - Length: 12/15/20/30 mm
  - Wire: 0.014
- IN.PACT Admiral, Medtronic
  - Size: 4-7 mm
  - Length: 40,60,80,120,150,200, and 250 mm
  - Over-the-wire
  - Wire: 0,035

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# Devices



- [ASD](#)
- [PDA](#)
- [VSD](#)



# Device: ASD

## Amplatzer ASD

- Waist: 4-40 mm
- Sheath: 6-12 Fr

## Occlutech ASD

- Waist: 4-40 mm
- Sheath: 7-12 Fr

## Cocoon ASD

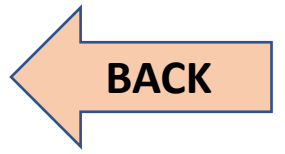
- Waist: 8-42 mm
- Sheath: 6-14 Fr

## Gore septal occluder (GCO)

- Size:
  - 27 mm (defect 8-15mm)
  - 32 mm (defect 13-20 mm)
  - 37 mm (defect 18-25 mm)
  - 44 mm (defect 23-30 mm)
  - 48 mm (defect 28-35 mm)

Sheath: 10-14 Fr





# Device: PDA

## Amplatzer duct occluder (ADO)

- Different size
- Standard length
- Sheath: 5-7 Fr

## Occlutech PDA

- Different size
- Sheath: 6-9 Fr
- Shank: standard/long

## PFM coil

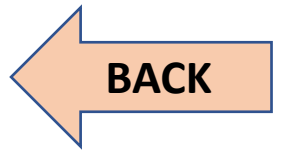
- 4x4mm and 4x5 mm can be implanted from the aorta.

## Piccolo occluder

- 3-5mm size
- 2-6mm length
- Sheath: 4 Fr
- Only approved devices for premies > 700g

## Medtronic MVP

- 3-7mm size
- 12mm length
- Microcatheter
- Suitable for premature PDAs



# Device: VSD

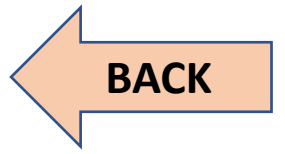
## Amplatz-VSD-MUSC

- Waist: 4-18 mm
- Sheath: 6-9F

## Konar MF VSD

- Size: 2-10 mm
- Sheath: 4-7Fr

# Others



- Bioptomes
- Bailys system

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