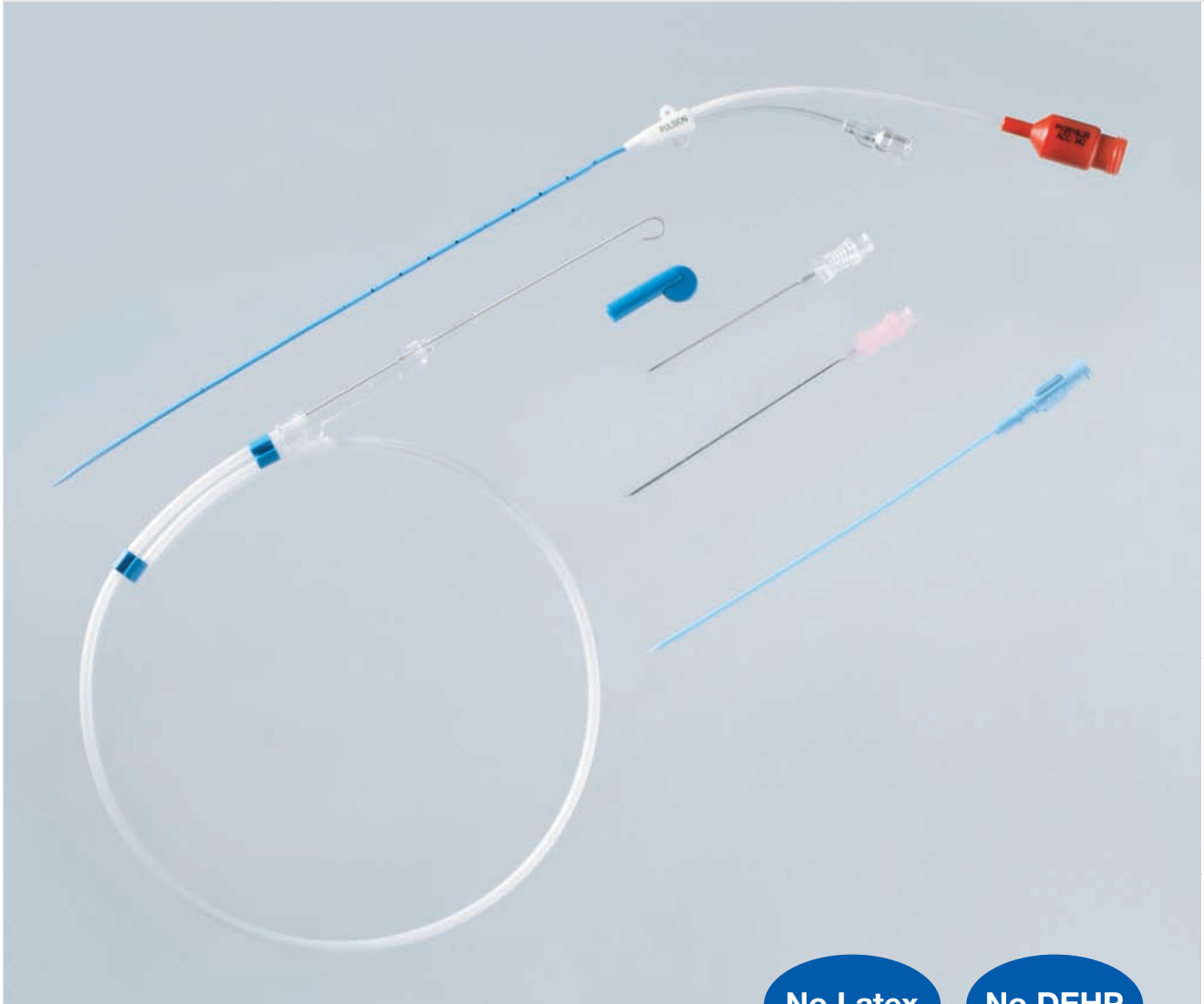


# PULSIOCATH

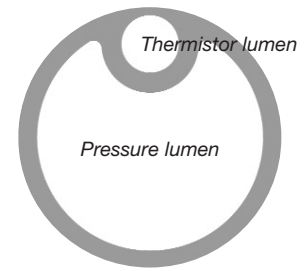
## Arterial thermodilution catheters



No Latex

No DEHP

**PULSIOCATH arterial thermodilution catheters** are especially designed for minimally invasive hemodynamic volumetric monitoring with PiCCO-Technology. A temperature sensor at the tip of the catheter captures the thermodilution curve of a bolus of sodium chloride administered by central venous injection, after its passage through the cardiopulmonary system. The optimised cross section of the pressure lumen simultaneously ensures the best possible pressure signal transmission for the arterial pulse contour analysis.



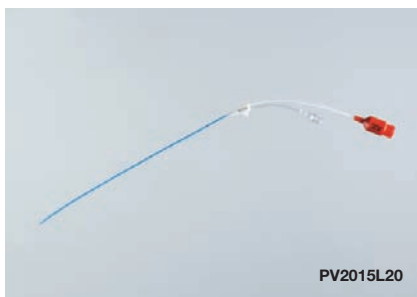
*Cross section PULSIOCATH*

PULSIOCATH thermodilution catheters are to be used like conventional arterial catheters, they are radiopaque, DEHP- and latex-free. PULSIOCATH thermodilution catheters are made of polyurethane, a material with low thrombogenic potential, allowing the catheter to remain in the vessel for ten days or longer. Blood samples can be withdrawn from the pressure lumen as usual. The catheters are designed for single use.

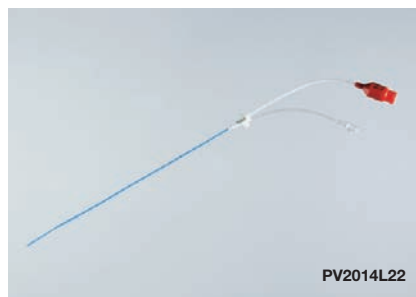
For best measuring results the tip of a PULSIOCATH must be placed near the central circulation where both, sufficient blood flow for the thermodilution measurement and, simultaneously, a good pressure signal for the pulse contour analysis is present.

For easy positioning via **Seldinger technique**, adapted insertion needles, guide wires with soft ends and one-hand insertion aids are added to the different catheter models. Some models come with dilators.

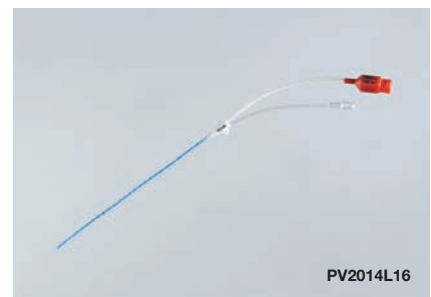
**PULSION offers different catheter models, adapted to size and weight of patients as well as to the preferred positioning site.**



PV2015L20



PV2014L22



PV2014L16

#### **PV2015L20**

Femoral artery in adults

Ø 5F, length 20 cm

The most commonly used PULSIOCATH for use in the femoral artery of adults. It is proven that catheters positioned in the femoral artery are not associated with a higher rate of catheter-related complications than radial artery catheters. [1]

#### **PV2014L22**

Brachial artery in adults

Ø 4F, length 22 cm

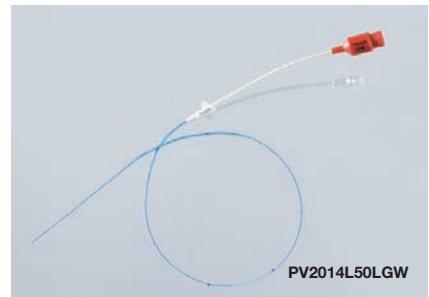
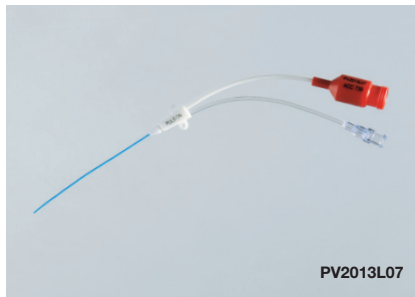
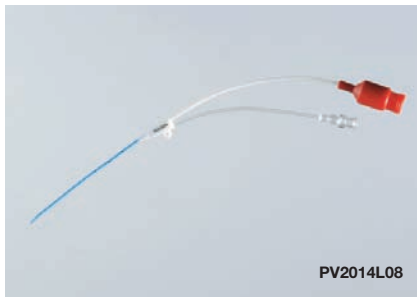
On account of the longer length, but smaller diameter, this model is particularly suitable for use in the brachial artery of adults. The brachial artery should be punctured so that the tip of the catheter reaches the axillary artery. [2]

#### **PV2014L16**

Femoral artery in small adults

Ø 4F, length 16 cm

On account of the shorter length and diameter this model is particularly suitable for the use in the femoral artery of small adults.



### PV2014L08

Axillary artery in adults, femoral artery in children

Ø 4F, length 8 cm

This catheter is commonly used when puncture of the femoral artery is contra-indicated. The axillary artery should be punctured so that the tip of the catheter is lying downstream from the carotid artery. [3] This catheter can also be used with taller children in the femoral artery.

### PV2013L07

Femoral artery in children and infants, axillary artery in small adults

Ø 3F, length 7 cm

The smallest catheter of the PULSIOCATH family is suitable for all children who can be punctured with a 20G (corresponds to 3F) catheter. [4, 5] The other positioning site for this catheter is the axillary artery in small adults.

### PVPK2014L50LGW-46

Radial artery in adults

Ø 4F, length 50 cm

Excellently suited to short-term use in the operation room, recovery room and intensive care unit. After puncture of the radial artery the tip of this catheter must be advanced into the axillary artery and should not remain in the vessel for more than 3 days. In the literature a very low complication rate is described for the use of long radial artery catheters in over 16,000 patients. [6, 7] In order to ensure the best possible transmission, this catheter is only available in combination with a short pressure line, adapted to the intravascular length and the resonance behaviour of the catheter. (pressure line not DEHP-free)



### Single packed guide wires:

In case the guide wire becomes unsterile or damaged during positioning of a catheter, it is available as an individual item.

## Connection to the PiCCO-Technology family:

### PiCCO *plus*

The catheters are automatically identified. The article number PV201XLXX and the arterial catheter constant ACC (indicated on the red plug) are displayed in the INPUT screen of the PiCCO *plus*.

### PiCCO

Please select the catheter in the INPUT screen of the PiCCO according to the information on the catheter packaging.

### Philips PiCCO-Technology Module (M1012A #C10) and Dräger Infinity® PiCCO SmartPod™

These Monitors automatically identify PiCCO catheters. If a catheter is not identified please enter the arterial catheter constant (on the red plug) manually.

### References (available on request):

- 1 Scheer et al: Clinical review: Complications and risk factors of peripheral arterial catheters used for haemodynamic monitoring in anaesthesia and intensive care medicine. *Critical Care* 6: 198-204, 2002
- 2 Antonini et al: PiCCO System con accesso arterioso brachio-ascellare nel monitoraggio emodinamico degli interventi per aneurisma dell'aorta addominale. [Haemodynamic study by PiCCO system with brachial artery access during anaesthesia for abdominal aortic aneurysm repair] *Minerva Anestesiol* 67: 447-456, 2001 [English abstract, English translation]
- 3 Segal et al: Transpulmonary thermodilution cardiac output measurement using the axillary artery in critically ill patients. *J Clin Anesth* 14:210-213, 2002
- 4 Pauli et al: Cardiac output determination in children: equivalence of the transpulmonary thermodilution method to the direct Fick principle. *Intensive Care Med* 28: 947-952, 2002
- 5 Schiffmann et al: Assessment of cardiac output, intravascular volume status and extravascular lung water by transpulmonary indicator dilution in critically ill neonates and infants. *J Cardiothor Vasc Anaesth* 16: 592-597, 2002
- 6 Clementi et al: Monitoraggio emodinamico con catetere radiale lungo. [Hemodynamic monitoring using a long radial catheter], *Minerva Anestesiol* 68: 231-235, 2002 [English abstract]
- 7 Orme et al: Measurement of cardiac output by transpulmonary arterial thermodilution using a long radial artery catheter. A comparison with intermittent pulmonary artery thermodilution. *Anaesthesia* 59: 590-594, 2004

Article number	PV2015L20	PV2014L22	PV2014L16	PV2014L08	PV2013L07	PV2014L50LGW
Application	Femoral artery adults Standard catheter	Brachial artery adults	Femoral artery small adults	Axillary artery adults Femoral artery children	Femoral artery children and infants Axillary artery adults	Radial artery adults (short-term application up to 3 days)
Arterial catheter constant ACC	342	141	341	741	739	541
Outer diameter	5F (~16G) / 1.7 mm	4F (~18G) / 1.4 mm	4F (~18G) / 1.4 mm	4F (~18G) / 1.4 mm	3F (~20G) / 0.9 mm	4F (~18G) / 1.4 mm
Usable length	20 cm	22 cm	16 cm	8 cm	7 cm	50 cm
Inner diameter pressure lumen	0.71 mm	0.71 mm	0.61 mm	0.61 mm	0.50 mm	0.71 mm
Characteristics and length of the guide wire	Ø 0.025 inch / 0.63 mm Length: 60 cm both ends soft: - radius of J: 3 mm - straight	Ø 0.025 inch / 0.63 mm Length: 70 cm both ends soft and straight	Ø 0.021 inch / 0.53 mm Length: 60 cm both ends soft: - radius of J: 3 mm - straight	Ø 0.021 inch / 0.53 mm Length: 45 cm both ends soft: - radius of J: 3 mm - straight	Ø 0.018 inch / 0.46 mm Length: 40 cm both ends soft and straight	Ø 0.025 inch / 0.63 mm Length: 120 cm both ends soft and straight, PTFE coated
Diameter and length of the cannulas	1. Ø 18G Length: 80 mm 2. Ø 20G Length: 55 mm	1. Ø 18G Length: 80 mm 2. Ø 20G Length: 55 mm	1. Ø 18G Length: 80 mm 2. Ø 20G Length: 55 mm	Ø 20G Length: 55 mm	1. Ø 20G Length: 55 mm 2. Ø 22G Length: 38 mm	1. Ø 20G Length: 55 mm 2. Ø 20G Length: 40 mm radial artery catheter over needle cannula
Vessel dilator	Ø 5F (1.75 mm) Length: 13 cm	Ø 4F (1.4 mm) Length: 13 cm	Ø 4F (1.4 mm) Length: 13 cm	Ø 4F (1.4 mm) Length: 13 cm	-	-
Article number single packed guide wire	PVSG25-60SJ	PVSG25-70SS	PVSG21-60SJ	PVSG21-60SJ ⚠ Length 60 cm	PVSG18-40SS	-

#### Common characteristics

Material:	Polyurethane, blue colour, radiopaque, latex-free, DEHP-free
Measuring range:	27° C - 47° C
Impedance at 37° Celsius:	14.0 kΩ ±15 %
Distance between thermistor and tip:	5 mm (+4 mm / -0 mm)
Distance between length markers:	5 cm / 1 cm, depending on model

All PULSIOCATH thermodilution catheters are also available as complete PiCCO Kits (e. g. PVPK2015L20-46) including a pressure sensor (not DEHP-free) and an injectate temperature sensor housing. These kits can also be ordered with an additional pressure line for the intermittent measurement of the central venous pressure (Option -CVP).

#### Safety instructions

As with all arterial catheters, when using the PULSIOCATH Thermodilution catheter it must be verified that there is sufficient blood flow downstream from the insertion site of the catheter (clinical inspection, palpation of pulse, control of the body temperature, pulse oximetry). Keep to the guidelines for avoiding catheter-related infections. All sterile products offered by PULSION are designed for single use. Please take into account all information on use enclosed with the product, as well as warnings, safety instructions and contra-indications. Subject to technical modifications. No responsibility is accepted for the correctness of this information.



For further information please visit [www.PULSION.com](http://www.PULSION.com)  
or contact us directly via e-mail or phone.



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