

Safety you can rely on.

Cooled 3D mapping catheters for Carto 3



VANGUARD – a statement for the **future.**

Every since the company was founded, **VANGUARD** has stood for sustainability, innovative technology and first-rate quality in the remanufacturing of complex medical products. That's the high standard with which **VANGUARD** has established itself as the market leader in Europe.

VANGUARD has been successfully shaping the market for over 20 years and regularly releasing sophisticated and sustainable new product solutions made in Germany.

The remanufacturing of cooled ablation catheters and catheters with a 3D mapping function is a **VANGUARD** speciality.

Remanufacturing expertise

The high demands of complex 3D mapping catheters require **VANGUARD's** remanufacturing expertise.

To ensure that the remanufactured product in every way equals a brand-new product **VANGUARD's** in-house Research and Development team uses reengineering processes to examine new products and identify their technical specifications.

Even before a cleaning method is validated, all relevant data such as bending strength, torsional rigidity, lumen flow rate and impedance, for example, are assembled and evaluated.

Over **100,000**
remanufactured ablation
catheters in the past
5 years!



Opt for professionalism.

The biggest challenge in the remanufacturing of cooled ablation catheters lies in cleaning the long and very narrow lumen of catheter shaft so that no residue remains.

That's why our cleaning machines, workplaces and testing stations have been developed and tailored to individual remanufacturing requirements by the **VANGUARD** Research and Development department, in some cases also in collaboration with scientific institutions, such as the TU Berlin.

Extra care and attention is required for the remanufacturing of the electronic memory chips and magnetic field sensors of electrophysiological catheters with a 3D mapping function.

VANGUARD has developed dedicated testing equipment and its own testing stations specifically for the magnetic field sensors needed to display the catheter in the 3D mapping system or for the force measuring function.

100% Monitoring of Results. You can trust us for safety.



INCOMING GOODS INSPECTION

Incoming goods inspection

Strict quality controls to ensure that products unsuitable for remanufacturing don't find their way into the remanufacturing process in the first place.

Precleaning

Removal of impurities even before the remanufacturing process begins.

Laser marking

All products are marked with an individual identification number for tracking purposes.



HYGIENE SAFETY CHECK

Reverse flushing

A unique, distal-to-proximal flushing concept for cooled ablation catheters. It involves a patented cleaning machine in which a flow effect moving away from the ablation dome flushes out any residues possibly remaining in the lumen.

Flow rate monitoring:

Continues volumetric monitoring of the preparation media that flows through the lumen.

Microbiological testing:

To ensure the efficiency of the cleaning process and fully documented, each catheter is checked for protein residue using the modified OPA method (reference method in accordance with ISO 15883) in VANGUARD's in-house L2 hygiene laboratory.



PERFORMANCE SECURITY CHECK

Leak testing:

Testing the seat tightness of drainage electrodes in every preparation cycle and rejection of catheters with leaky electrodes.

Visual monitoring

Visual monitoring at up to 40x magnification for curvature shape, for example, or damage along the full length of the catheter from the electrical connection to the tip.

Mechanical function test

Testing of all moving components of the control system and, in the case of catheters with a force-measuring function, testing to ensure flawless functioning.

VANGUARD product verification (VPV)

Testing of electrical functionality, such as insulation, current flow, capacity and the temperature sensors of the company's own, specially developed testing system.



OUTGOING GOODS INSPECTION

Sterilisation of outgoing goods

A low-temperature process preventing damage to thermosensitive products guarantees sterility inside the packaging.



Join us on a **tour** of our **plant!**

Come along and see for yourself how our innovative, proprietary technology ensures the safe and validated processes we use for the competent remanufacturing of medical products!

We look forward to your visit.

Just give us a call or send us an email to arrange a time to suit you:

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