Thermogard® XP

ZOLL®

Your Choice, **Our Precision**

Precisely the

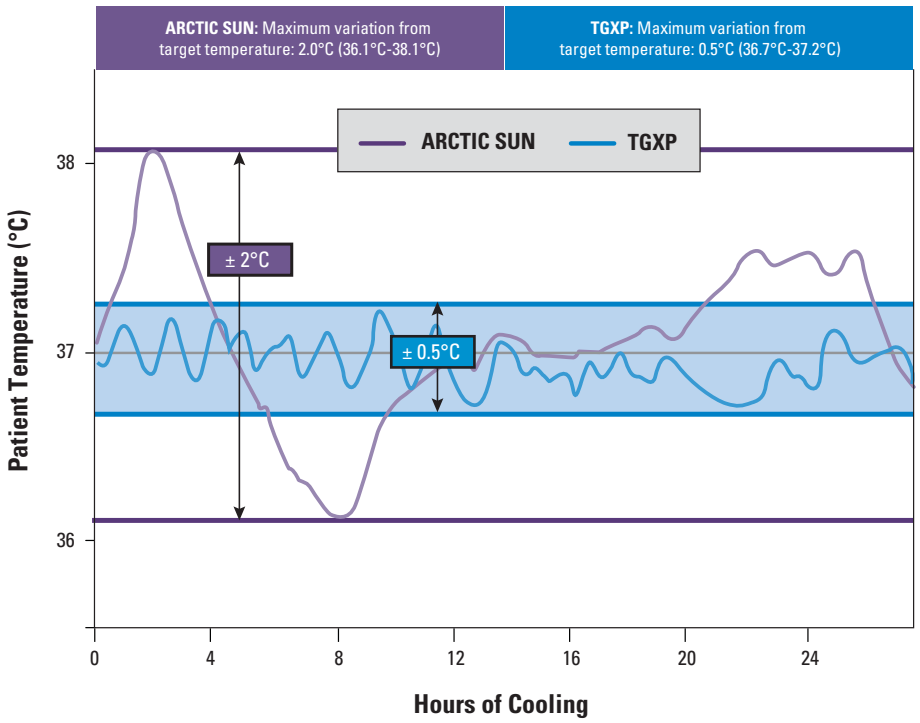
Because patients, clinical scenarios, and protocols differ, the choice of target temperature is based on achieving the best outcome for each individual patient. Reduce the risk of missing your target with Thermogard XP® (TGXP). **Whether you cool to 36°C or 33°C, TGXP is precisely the right choice.**

The TGXP system offers superior clinical efficiency over surface cooling in reaching and maintaining target temperature.[1,2,3,4,5,6]

COOL TO 36°C

If you choose to cool to 36°C, TGXP ensures that the patient does not become febrile and that temperature is consistently controlled within the therapeutic target.[2]

Temperature over Time: Arctic Sun vs TGXP



Based on a comparison of a patient temperature during treatment with the Arctic Sun and a patient temperature during treatment with the TGXP system, after target temperature was achieved and temperature maintained. Both patients followed similar treatment protocols and an anti-shivering regimen was used. The area under the curve (AUC) for Arctic Sun is 526°C-hr; the AUC for TGXP is 312°C-hr.

Comparison of TGXP and Surface Cooling

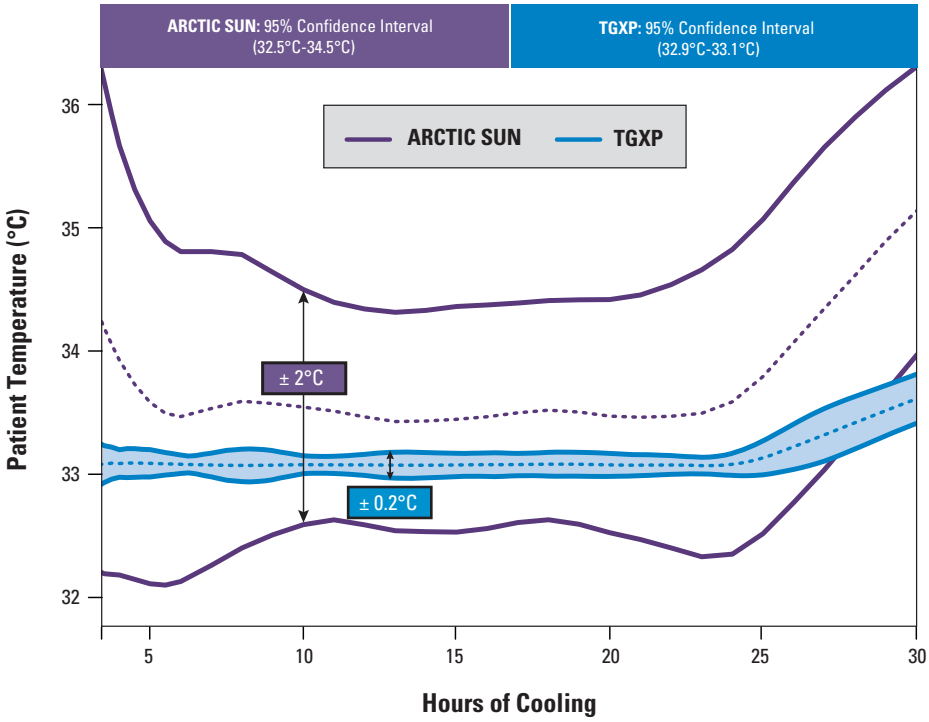
Clinical Measurements	Surface Cooling	TGXP
Target Temperature Maintained (±0.2°C)	55% time within range[3]	97% time within range[3]
Time from Arrest to Start of Cooling	60 minutes[7]	65 minutes[7]
Shivering Management	85% rate of shivering[8]	4% rate of shivering[2]

Right Choice

COOL TO 33°C

If you choose to cool to 33°, TGXP ensures that target temperature is quickly reached and maintained with unmatched accuracy.[3,6]

Temperature over Time: Arctic Sun vs TGXP

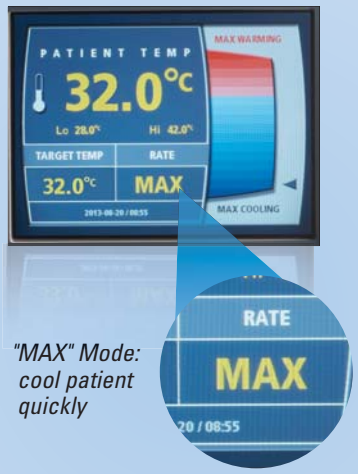


Based on unpublished data for 19 patients from COOL-ARREST JP: An Evaluation of Therapeutic Hypothermia by Means of Intravascular Cooling (Intravascular Temperature Management; IVTM) in Patients who Have Undergone Endogenous Cardiac Arrest and Return of Circulation – a Joint, Multicenter, Single-Arm, Prospective Interventional Study Trial[9] and published results for 32 patients from a randomized controlled trial comparing the Arctic Sun to standard cooling for induction of hypothermia after cardiac arrest.[4] The purple dotted line represents the mean patient temperature for Arctic Sun; the blue dotted line represents the mean patient temperature for TGXP.

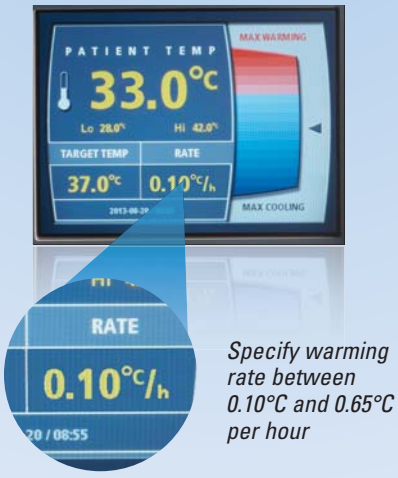
Comparison of TGXP and Surface Cooling

Clinical Measurements	Surface Cooling	TGXP
Reaching Target Temperature	29% of patients did not reach target temperature[4]	100% reached target temperature[9]
Time to Target Temperature 33°C	190 minutes to target temperature[4]	64 minutes to target temperature[5]
Temperature Overshoot (<32°C)	19%[6]	0%[6]

Patients reach target temperature quickly and accurately with TGXP.[3,6] And core temperature is easily and reliably maintained because TGXP constantly monitors the patient and automatically adjusts to the selected target temperature.

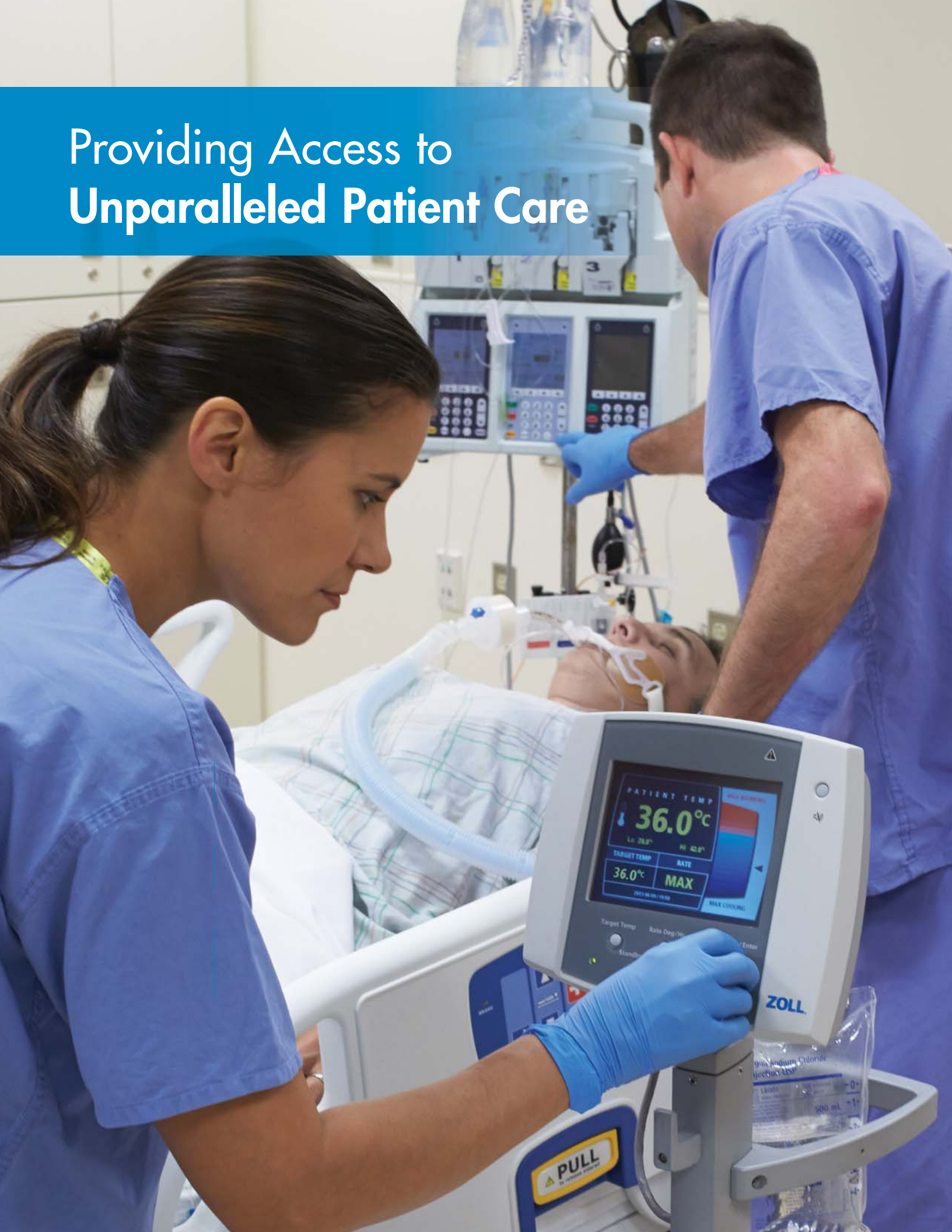


"MAX" Mode: cool patient quickly



Specify warming rate between 0.10°C and 0.65°C per hour

Providing Access to **Unparalleled Patient Care**



Streamlining Your Workflow

Because it cools from the inside out, TGXP offers unrestricted patient access. And thanks to intelligent design, it integrates seamlessly into your workflow.

- TGXP reduces nursing workload by 43% compared with surface cooling methods.[10]
- Unlike surface methods, there are no pad leaks or soiled pads to change.
- No other catheter is needed. To maximize efficiency and optimize patient care, the TGXP system has a triple-lumen catheter. Use the same catheter for temperature management, medication delivery, blood draws, and venous pressure monitoring.

Uncovering the Limitations of Surface Cooling

With surface cooling, temperature management efficacy depends on covering at least 40% of the surface area[11] and requires routine skin integrity and hygiene checks. In addition, surface cooling may not be suitable for patients with diabetes and other underlying conditions that make them more susceptible to skin damage.[11] With TGXP, poor tissue perfusion and skin integrity issues can be avoided.

Because TGXP offers clinicians efficient, reliable temperature management, they now have more time to focus on the other key aspects of patient treatment and care.[10]

Integrating TGXP into Your Hospital

From customer-specific training to round-the-clock clinical and technical support, ZOLL partners with you to ensure the success of your temperature management program. If you're in the process of initiating a program, our clinical field specialists are available to help you develop a protocol to meet the demands of your institution. And should you ever need it, you can be confident that help is a phone call away 24/7.

INTEGRATION GUIDANCE

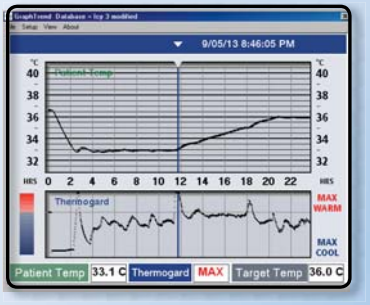
With ZOLL's extensive experience in temperature management, we can offer guidance in the development of a protocol that is best suited for your program. Our clinical field specialists, all experienced registered nurses, can guide you as you formulate a protocol customized for your hospital.

ONSITE TRAINING

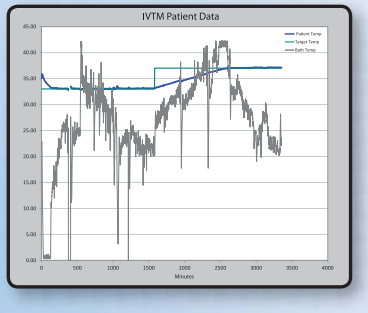
With every installation, ZOLL offers exclusive onsite product training to help establish your program. After the onsite training is complete, ZOLL Clinical Field Specialists are available to provide support by phone or in person to answer your questions and to assist with data collection and download.

How TGXP Works

Central to ZOLL's TGXP system is its ability to cool and warm patients from the core. Intuitive and easy to use, it consists of the Thermogard XP console and a multiballoon heat-exchange catheter. Cool or warm saline circulates through the catheter in a closed loop, quickly cooling or warming the patient as venous blood passes over the balloons, without infusing saline into the patient.



Full patient data: Track patient and system data, then electronically transfer it to the patient's file.



Once treatment is complete, it's easy to view and graph patient data using TempTrend™ software and EXCEL.

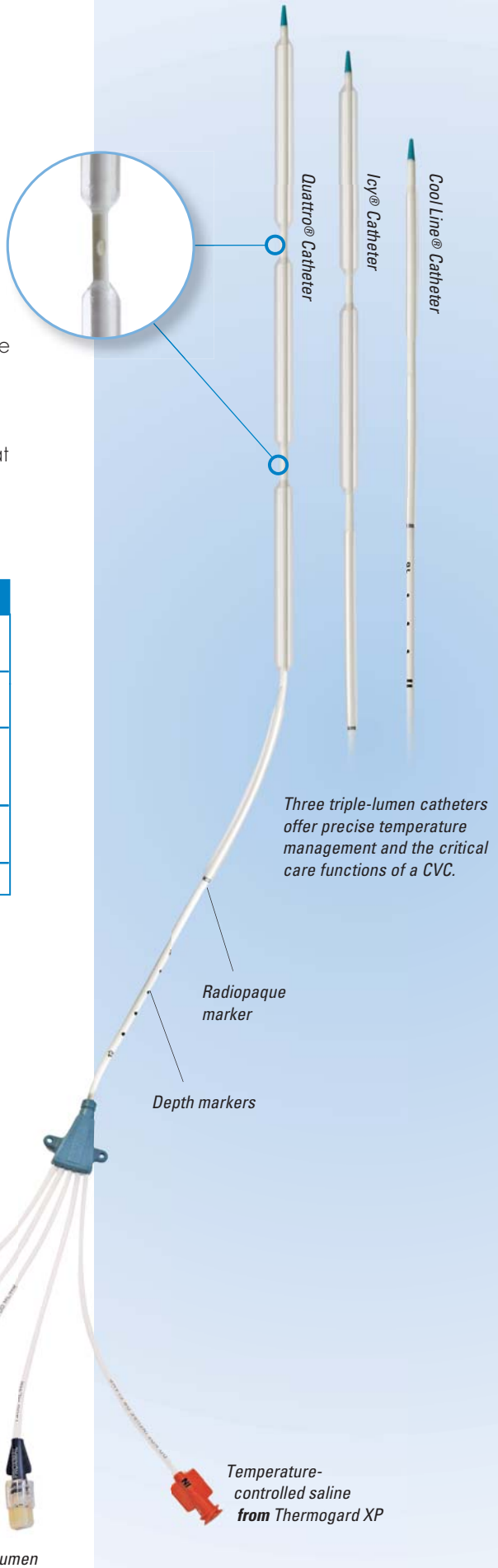
A Direct Line to Advanced Care

ZOLL's patented catheter design combines precise temperature management with medication delivery and the other critical care functions of a standard central venous catheter. Insert the catheter in place of a triple-lumen central venous catheter and provide temperature management with just one catheterization.

To meet patient needs, ZOLL offers three cooling/heating catheters that vary by insertion site—internal jugular, subclavian, or femoral—and cooling power.

Catheter Name	Cool Line®	Icy®	Quattro®
Cooling Power (watts) with Thermogard XP	74	139	173
Number of Infusion Lumens	3	3	3
Insertion Site	Subclavian Internal Jugular Femoral	Femoral	Femoral
Outer Diameter (OD) at Insertion Site	9.3F	9.3F	9.3F
Length	22 cm	38 cm	45 cm

A variety of catheters and unmatched control regardless of target temperature enable you to tailor the treatment to the individual. Precise, effective therapy for every protocol and every patient.



TGXP Is Precisely the Right Choice

Parameters	Surface Cooling	ZOLL TGXP
Target Temperature Maintained (± 0.2°C)	Poor: 55% of time in range[3]	Superior: 97% of time in range[3]
Time to Target Temperature	Slow: 190 minutes[4]	Rapid: 64 minutes[5]
Shivering	High rate of shivering (85%);[8] may require higher doses of paralytics	Low rate of shivering (4%);[2] may require less sedation and lower doses of paralytics
Nursing Time	Extensive: requires management of temperature overshoot/undershoot,[12] pads, and shivering	Minimal: Set and device auto adjusts to desired temperature. Enables more focus on other aspects of patient care.
Patient Eligibility		
Patients with spinal injuries	No[11]	Yes
Patients with skin issues	No[11]	Yes
Patients on multiple vasopressors	No[11]	Yes
Conscious patients	No[11]	Yes
Patient Access	Limited: 40%-70% of patient covered with pads and tubing	Unhindered
Adverse Events	Potential for skin injuries[13,14,15]	Risk of DVT is no greater than a standard CVC[2]
Central Venous Catheter (CVC) Requirement	Additional: Separate CVC required	Integrated: CVC integral to ZOLL catheter design

1 Mayer SA, et al. *Critical Care Medicine*. 2004;(3)212:2508-2515.

2 Diringer MN, et al. *Critical Care Medicine*. 2004;(32)2:559-564.

3 Hoedemaekers CW, et al. *Critical Care*. 2007;11:R91.

4 Heard KJ, et al. *Resuscitation*. 2010;81:9-14.

5 Horn CM, et al. *Journal of Neurointerventional Surgery*. 2014 Mar;6(2):91-95.

6 Knapik P, et al. *Kardiologia Polska*. 2011;69(11):1157-1163.

7 Tomte O, et al. *Critical Care Medicine*. 2011;39(3):443-449.

8 Carhuapoma JR, et al. *Journal of Neurosurgical Anesthesiology*. 2003;15(4):313-318.

9 COOL-ARREST JP: An Evaluation of Therapeutic Hypothermia by Means of Intravascular Cooling (Intravascular Temperature Management; IVTM) in Patients who Have Undergone Endogenous Cardiac Arrest and Return of Circulation – a Joint, Multicenter, Single-Arm, Prospective Interventional Study Trial.

10 Lemons N. AACN Abstract, Region 6 Meeting. 2004 Sept 27.

11 Medivance Arctic Sun® Energy Transfer Pad™ Instructions for Use.

12 Merchant RM, et al. *Critical Care Medicine*. 2006;34:S490-S494.

13 Varon J, et al. *Resuscitation*. 2008;78:248-249.

14 Wang H, et al. *Therapeutic Hypothermia and Temperature Management*. 2013;3(3):147-150.

15 Liu YM, et al. *Journal of Burn Care & Research*. 2014;35(3):e184-186.

ZOLL Medical Corporation | 269 Mill Road | Chelmsford, MA 01824 | 978-421-9655 | 800-804-4356 | www.zoll.com

For subsidiary addresses and fax numbers, as well as other global locations, please go to www.zoll.com/contacts.

Printed in U.S.A.
MCN TP 1411 0075
104252-001 Rev. 3

ZOLL®