

FIAB SpA is an Italian Company, manufacturing and marketing worldwide devices and accessories for temporary cardiac stimulation and electrophysiology. Leader manufacturer of esophageal cardiac stimulation devices, since 2005 FIAB has developed and patented a new system for the esophageal temperature monitoring during AF ablation procedures.





Manufacturing Plants and Offices

Via Costoli 4 Via Passerini 2 Via della Resistenza 16 50039 Vicchio - Firenze - Italy Tel +39 055 8497999 - Fax +39 055 8497977 info@fiab.it - www.fiab.it

ESOTEST MULTI

REAL-TIME ESOPHAGEAL TEMPERATURE MONITORING

not available in the United States







ESOTEST MULTI

Esophageal Temperature Monitoring

not available in the United States

Esophageal thermal damage may occur in patients undergoing left atrial ablation procedures and can later degenerate into a rare (0.1%) but fatal events (atrial esophageal fistulae). A correct monitoring of the esophageal temperature can help in preventing lesions of thermal origin.

Esotest MULTI.

with its seven olive shaped electrodes, provides cost effective multi-pole luminal esophageal temperature monitoring over a 6cm span during RF and Cryo ablation procedure. The multi-thermocouple design allows a rapid response (below 1s) to temperature variation with a precision of 0.3°C



Esotest allows real time monitoring of luminal esophageal temperature and of its variation in the range -15° to 75° during RF or Cryo procedures, providing critical information necessary to adjust the procedure parameters as needed. The seven sensors cover the whole critical esophageal segment running close to the left atrium avoiding the necessity of repositioning the probe.



ESOTEST is connectable to 3D imaging systems



ESOTEST MULTI MONITOR not available in the United States

A Touch Screen monitor provides an easy continuous visualization of the detected temperature values and of their evolution with an accuracy of 0.3° in the range -15° to 75° . Measured data are saved in the internal memory and can be exported through an USB port. A digital and analog video output allows to duplicate the screen on other monitor.

Programmable visual and audible alarms alert physician when esophageal temperature reaches a preset high or low threshold. More alarms signal when the esophageal catheter is not correctly positioned as well as rapid and potentially dangerous temperature variation rates.

ESOTEST MULTI PROBE

not available in the United States

7 French thin body and silicone tip are designed for an easy and atraumatic insertion. Once positioned, the probe proves to be extremely stable and easily self-adapting to the esophageal path. The thermocouple technology allows a response time to temperature variation below 1s with a precision of 0.3°C, providing accurate monitoring of temperature variation rate.

> Shrouded pin connection provide a standard interface for recording and imaging system.



ESOTEST MULTI

not available in the United States

Esophageal Temperature Monitoring System

- 7 electodres for a multi level esophageal temperature monitoring
- Atraumatic insertion and stable position
- Accurate and rapid response to temperature variation in the range -15° to 75°
- Detection of the temperature variation rate
- Connectable to 3D imaging systems

Recommended Readings

- C. Pappone et al, Atrioesophageal fistula as a complication of percutaneous transcatheter ablation of atrial fibrillation. Circulation 2004; 109:2724-2726.
- Takahashi et al, Complications in the catheter ablation of atrial fibrillation: Incidence and management. Circ. J. 2009; 73:221-226.
- Sonmez et al, A fatal complication due to radiofrequency ablation for atrial fibrillation: atrio-esophageal fistula. Ann. Thorac. Surg. 2003;76:281-283.
- N. Doll et al, Esophageal perforation during left atrial radiofrequency ablation: Is the risk too high? J. Thorac. Cardiovasc. Surg. 2003;125:836-842.
- A.M.Gillinov et al, Esophageal injury during radiofrequency ablation for atrial fibrillation. J. Thorac. Cardiovasc Surg. 2001;122:1239-4120
- M.I. Scanavacca et al, Left atrial-esophageal fistula following radiofrequency catheter ablation of atrial fibrillation. J. Cardiovasc. Electrophysiol. 2004;15:960-962.
- F. Stöckigt et al, Atrioesophageal Fistula After Cryoballoon Pulmonary Vein Isolation, J. Cardiovasc Electrophysiol, vol. 23, pp. 1254-1257, 2012.
- H.W. Lim et al., Atrioesophageal Fistula During Cryoballon Ablation for Atrial Fibrilaltion, J. Cardiovasc Electrophysiol.,vol.25, pp. 208-213, 2014.
- R. Cappato et al, Prevalence and causes of fatal outcome in catheter ablation of atrial fibrillation. J Am Coll Cardiol 2009;53:1798 1803
- G. Lee et al, Low risk of major complications associated with pulmonary vein antral isolation for atrial fibrillation: results of 500 consecutive ablation procedures in patients with low prevalence of structural heart disease from a single center. J. Cardiovasc. Electrophysiol. 2011;22:163–168
- H. Calkins et al, Task Force on Catheter and Surgical Ablation of Atrial Fibrillation. Heart Rhythm 2012;9:632-696e.1-20.
- Nakagawa H et al, High incidence of asymptomatic esophageal ulceration after pulmonary vein antrum isolation in patients with atrial fibrillation, Heart Rhythm. 2007;5(Suppl): S61-S62.
- Ghia KK et al, A nationwide survey on the prevalence of atrioesophageal _stula after left atrial radiofrequency catheter ablation, J Interv Card Electrophysiol. 2009 Jan;24(1):33-6. Epub 2008 Oct 4.
- Singh S, d'Avila A, Doshi S, et al, Esophageal injury and temperature monitoring during atrial fibrillation ablation, Circ Arrhythmia Electrophysiol.
- Dagres et al Complications of Atrial Fibrillation Ablation in a High-Volume Center in 1,000 Procedures: Still Cause for Concern? - J Cardiovasc Electrophysiol 2009 Sep;20(9):1014-9. Epub 2009 May 20.
- Gaspar T et al, Role of intraesophageal temperature monitoring to prevent esophageal injury during AF catheter ablation Abstract 2564 . Heart Center Unive sity Leipzig, Leipzig, Germany. April, 2008.
- Cummings JE et al, Assessment of temperature, proximity, and course of the esophagus during radiofrequency ablation within the left atrium, Circulation 2005;112:459-464.
- Halm U et al, Thermal esophageal lesions after radiofrequency catheter ablation of left atrial, The American Journal of Gastroenterology 105, 551-556 (March 2010)
- Roif et al, Monitoring of luminal esophageal temperature to avoid esophageal wall injury catheter ablation of atrial _brillation, EP volume 12 Supplement 1 June 2010 ISSN 1532-2092 96P/59
- Rittiglxt et al, Oesophageal temperature monitoring and incidence of oesophageal lesions after pulmonary vein isolation, Oxford Journals Medicine EF Europace Volume 12 may 2010, Issue 5 Pp. 655-661
- Metzner et al., "Increased incidence of esophageal thermal lesions using the second-generation 28-mm cryoballoon, " Circ. Arrhytm. Electrophysiol., vol.6, pp. 769-775, 2013.
- Fürnkranz A et al, Luminal esophageal temperature predicts esophageal lesions after second-generation cryoballoon pulmonary vein isolation. Heart Rhythm vol. 10, pp.789-793, 2013.
- Sause et al, Limiting esophageal temperature in radiofrequency ablation of left atrial tachyarrhythmias results in low incidence of thermal esophageal lesions, BMC Cardiovascular Disorders 2010, 10:52
- Sato et al, Measuring luminal esophageal temperature during pulmonary vein isolation of atrial fibrillation, World J Cardiol 2012 May 26; 4(5): 188-194