

**vitatron** • The Pace Makers

# VITATRON TECHNOLOGY



FULLY  
DIGITAL (2002)



POST-IMPLANT  
UPGRADABLE  
(1997)



SMALLEST  
(1984)



FULLY  
AUTOMATIC  
(2009)

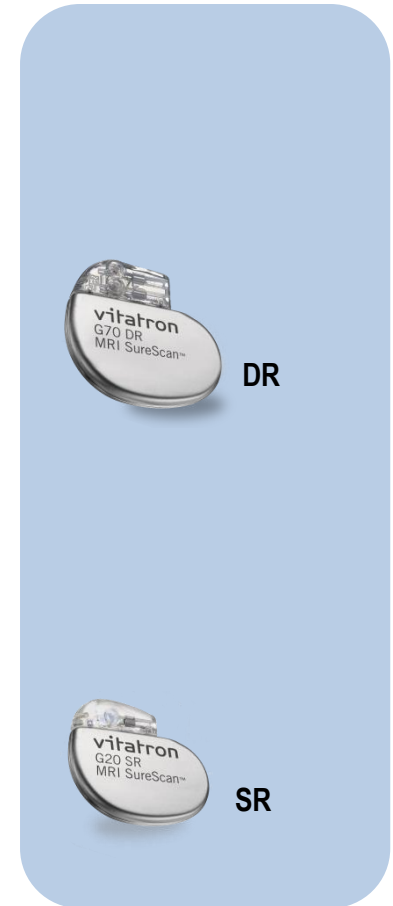
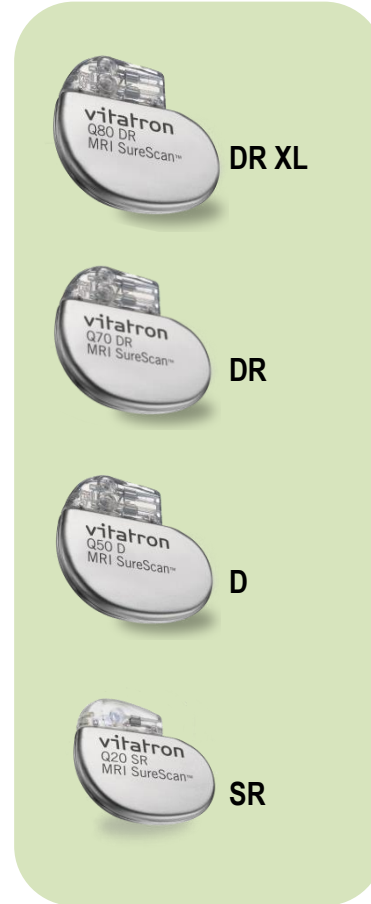


FIRST (1962)

# NEXT GENERATION MRI COMPATIBLE IPGs



6 MODELS  
BATTERY XL  
CARDIOTREND™  
1.5 AND 3T MRI SURESCAN™  
SMART VENTRICULAR PACING (SVP™)  
REMOTE PATIENT CARE



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**SMART**  
**EASY**  
**STRONG**

**INTRODUCING  
NEW GENERATION  
OF MRI CONDITIONAL  
PACEMAKER  
SYSTEMS**



Vitatron's new Q-series MRI SureScan pacemakers are built on the success of a company that is dedicated to leading-edge technology without ever compromising the service, relationship and responsiveness you've experienced for over 60 years.

Though we are a growing international company, our values are close to home. Our partnership with you is essential to meeting our shared goal of helping patients live full lives.

G and Q-series MRI™ SureScan® put the state of the art technology into pacemakers to achieve that goal."



# SMART

**SMART VP™**  
**REDUCED VP™+**

CHOOSE THE OPTIMAL THERAPY TO  
REDUCE RIGHT VENTRICULAR PACING



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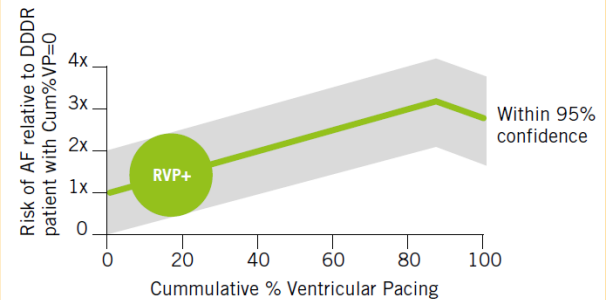
MRI™ SureScan® pacemaker system

# REDUCING RV PACING

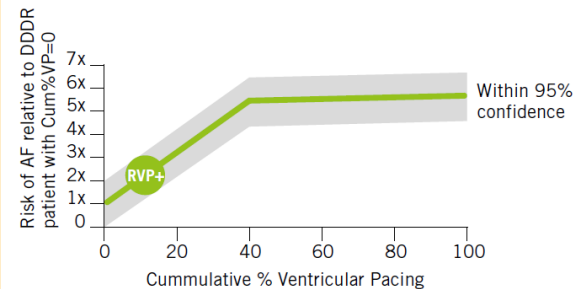
## CLINICAL RATIONALE

- Unnecessary RV pacing increases the risk of atrial fibrillation, heart failure hospitalization (HFH) and mortality<sup>1,2</sup>
- Every incremental 1% of unnecessary RV pacing increases the risk of AF by 1% and the risk of HFH by 5.4%<sup>2</sup>

### Risk of AF



### Risk of HFH



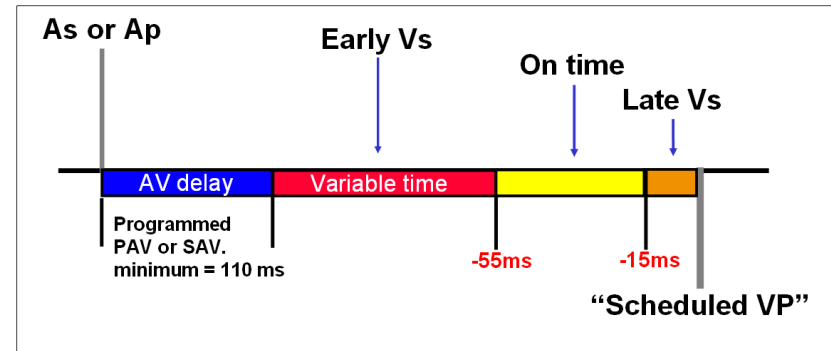
1. Sweeney MO, Hellkamp AS, Ellenbogen KA, et al, for the MOde Selection Trial (MOST) Investigators. Adverse effect of ventricular pacing on heart failure and atrial fibrillation among patients with normal baseline QRS duration in a clinical trial of pacemaker therapy for sinus node dysfunction. *Circulation*. June 17, 2003;107(23):2932-2937.
2. Sweeney MO, Bank AJ, Nsah E, et al. Minimizing ventricular pacing to reduce atrial fibrillation in sinus-node disease. *N Engl J Med*. September 6, 2007;357(10):1000-1008.

# RVP+

## REFINED VENTRICULAR PACING

### RVP+ REDUCES UNNECESSARY RV PACING TO LESS THAN 20%<sup>5</sup>

- Continuously searches for natural intrinsic conduction
- Optimizes AV delays relative to changes in patient PR intervals
- Allows AV delay to be extended up to 600 ms



*Reduced VP*

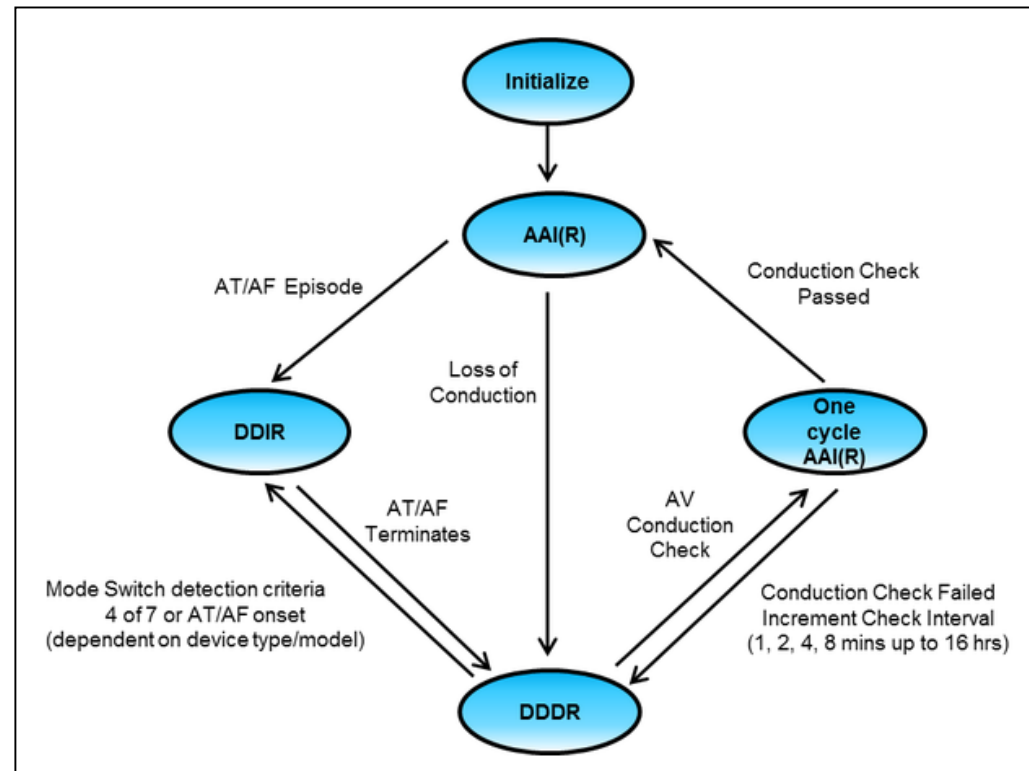
5. Melzer C, Sowellam S, Sheldon T, et al. Reduction of right ventricular pacing in patients with sinus node dysfunction using an enhanced search AV algorithm. Pacing Clin Electrophysiol. June 2005;28(6):521-527.

# SVP

## SMART VENTRICULAR PACING

### SVP™

- promotes intrinsic conduction by reducing unnecessary right ventricular pacing
- provides atrial-based pacing with ventricular backup.
- switches to DDDR or DDD mode if AV conduction is lost
- switches back to AAIR or AAI mode if AV conduction resumes (periodic conduction checks)





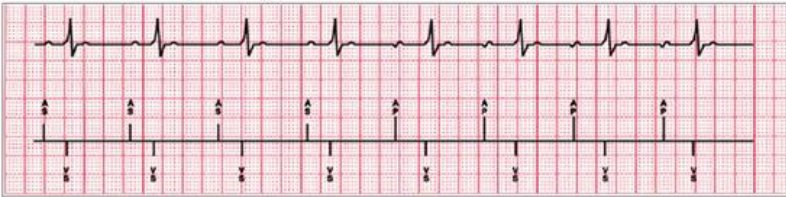
# SVP

## SMART VENTRICULAR PACING

### EXAMPLES

#### AAI(R) Primary Mode of Operation

Atrial based pacing allowing intrinsic AV conduction



#### Ventricular Back-Up

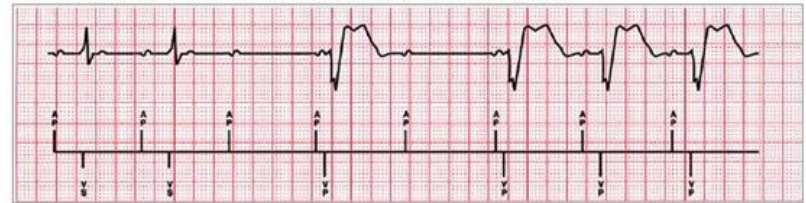
Ventricular pacing only as needed in the presence of transient loss of conduction.



#### Switch from AAI(R) to Temporary DDD(R) Mode

Ventricular support if loss of A-V conduction is persistent.

2 out of 4 Most Recent A-A Intervals with No Conducted VS Event



#### Switch from DDD(R) to AAI(R) — AV conduction check successful



# SVP

## SMART VENTRICULAR PACING

### CLINICALLY PROVEN

- Algorithm applied by SVP is clinically proven to reduce unnecessary right ventricular pacing to 0.5% in patients with sinus node dysfunction and to 1.6% in all pacing indicated patients studied, including those with intermittent AV block.<sup>1</sup>

1. EnRhythm™ Clinical Study Overview. 2005. Data on file at Medtronic, Inc.

# SVP RVP+

## CHOOSE THE OPTIMAL THERAPY FOR YOUR PATIENT

- SVP
  - Promotes intrinsic conduction by reducing unnecessary RV pacing
  - Provides atrial-based pacing with ventricular backup.
  - Switches to DDDR or DDD mode If AV conduction is lost
  - Switches back to AAIR or AAI mode If AV conduction resumes
  - Reduces unnecessary RV pacing to less than 0.5%<sup>1</sup>
- RVP+
  - Optimizes AV delays relative to changes in patient PR intervals
  - Allows AV delay to be extended up to 600 ms
  - Reduces unnecessary RV pacing to less than 20%<sup>5</sup>



# EASY

## ENSURING SAFE MRI ACCESS

VITATRON MRI SURESCAN® DEVICES ARE PURPOSELY BUILT TO BE SCANNED AND ALLOW MORE PATIENTS ACCESS TO BETTER DISEASE DIAGNOSTICS

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MRI™ SureScan® pacemaker system

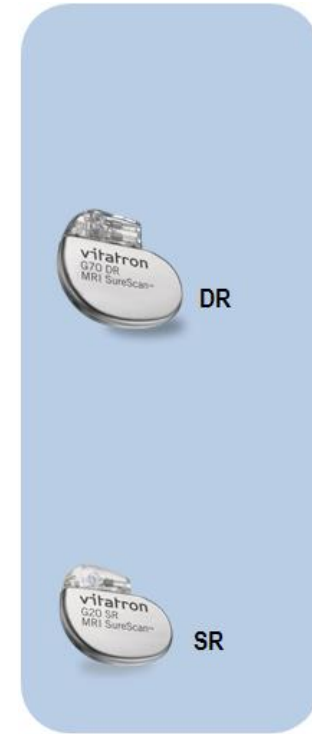
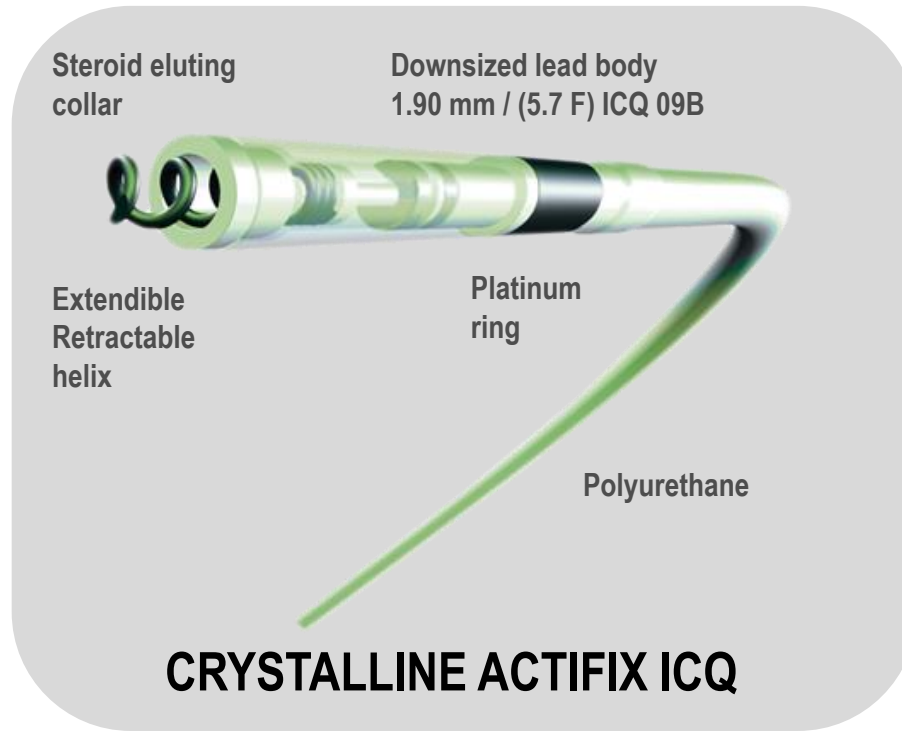
# MRI SURESCAN™

1.5 and 3 TESLA  
FULL BODY SCAN



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# MRI SURESCAN™ PACING SYSTEM



# MRI SURESCAN™ PACING SYSTEM

## Devices Built To Be Scanned<sup>1</sup>

- 1.5 T and 3T MRI Access
- Committed to a comprehensive testing and modeling process
- Enabling patients who need higher resolution images and/or shorter scan time to benefit from 3T technology<sup>1-3</sup>

# MRI SURESCAN™ PACING SYSTEM

## Full Body MRI Access Without Compromise

- No MRI exclusion zone
- No MRI duration restriction
- No patient height restriction
- SureScan devices and leads work in any combination

### REFERENCES

1. Yarnykh VL et al. Multicontrast black-blood MRI of carotid arteries: comparison between 1.5 and 3 tesla magnetic field strengths. *J Magn Reson Imaging*. 2006 May;23(5):691-8
2. Sahel et al. Cardiovascular MRI at 3T. *Appl Radiol*. 2007;36(11):10-26.
3. S. Taïeb et al. Clinical utility and economic viability of a 3T MRI in an anti-cancer centre: The experience of the centre Oscar Lambret. *Diagnostic and Interventional Imaging*. 2012. 93, 561—568





# STRONG

IMPROVING PATIENT SAFETY  
AND INCREASING DEVICE  
LONGEVITY

LONGEVITY UP TO 14.9\* YEARS

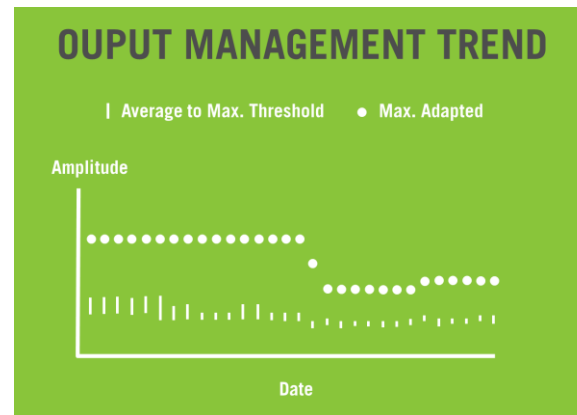
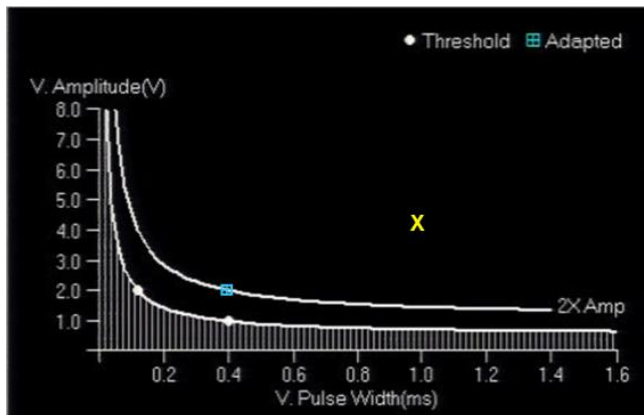
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MRI™ SureScan® pacemaker system

# IMPROVING PATIENT SAFETY INCREASING LONGEVITY

## ATRIAL AND VENTRICULAR OUTPUT MANAGEMENT

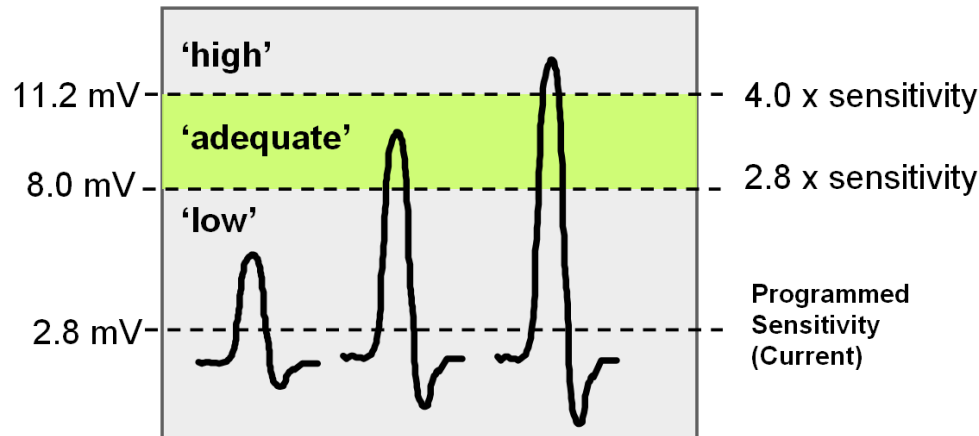
- Evaluates pacing thresholds automatically
- Adapts pacing outputs if necessary
- Provides diagnostic data to verify



# IMPROVING PATIENT SAFETY INCREASING LONGEVITY

## SENSING ASSURANCE™

- Actively manages battery drain
- Measures and adjusts sensitivity to ensure effective sensing



# IMPROVING PATIENT SAFETY INCREASING LONGEVITY

## LONGEVITY

The Q-series offers a longevity of more than 10 years by reducing pacing through SVP or RVP+, as well as through automatically adjusting pacing amplitude with Atrial and Ventricular Output Management



*Q80 DR MRI® SureScan™ comes with larger battery and an estimated longevity of 14.9 years.*

# VITATRON LEADS

## CRYSTALLINE ACTFIX

CRYSTAL CLEAR SENSING – OPTIMAL  
RELIABILITY – EASE OF HANDLING

## CRYSTALLINE

CRYSTAL CLEAR SENSING – EASE  
OF HANDLING – OPTIMAL PACING

## BRILLIANT S+

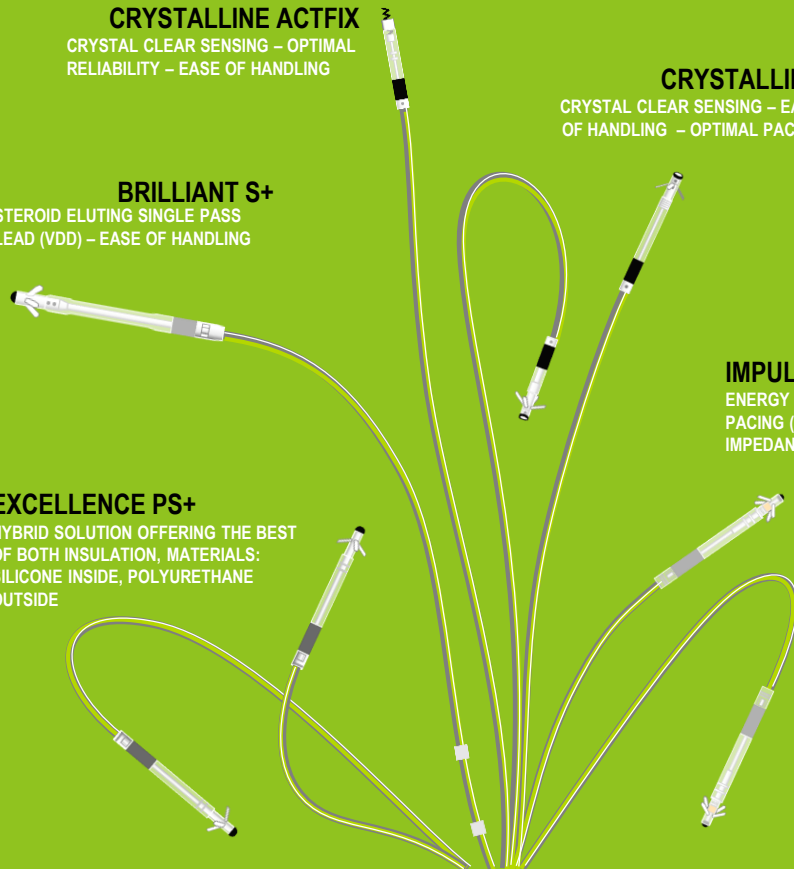
STEROID ELUTING SINGLE PASS  
LEAD (VDD) – EASE OF HANDLING

## IMPULSE II

ENERGY EFFICIENT  
PACING (HIGH  
IMPEDANCE)

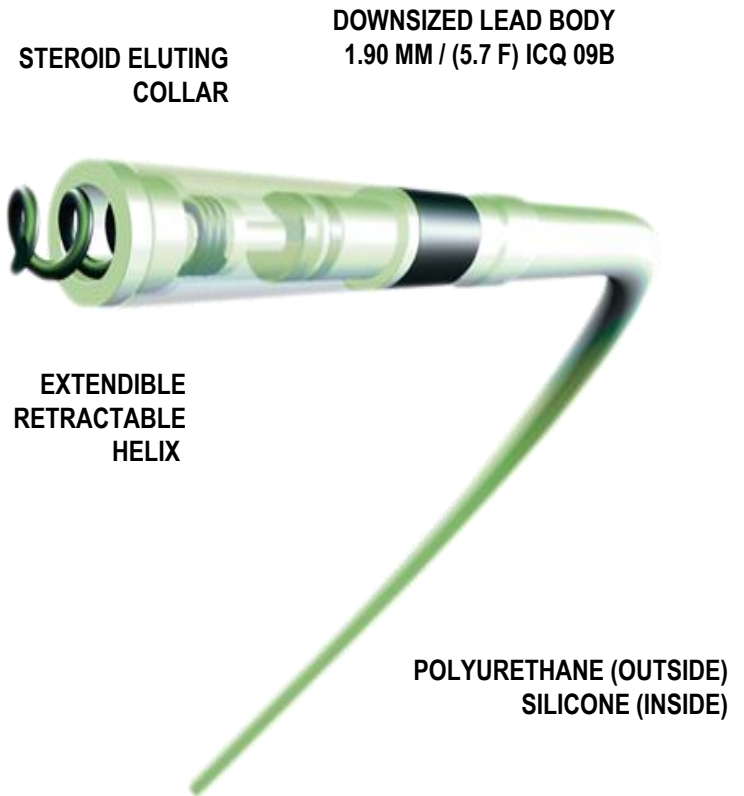
## EXCELLENCE PS+

HYBRID SOLUTION OFFERING THE BEST  
OF BOTH INSULATION, MATERIALS:  
SILICONE INSIDE, POLYURETHANE  
OUTSIDE



# CRYSTALLINE MODEL ICQ09B

MRI™ SureScan® pacing lead  
1.5 and 3 Tesla Compatible



STEROID ELUTING  
COLLAR

DOWNSIIZED LEAD BODY  
1.90 MM / (5.7 F) ICQ 09B

EXTENDIBLE  
RETRACTABLE  
HELIX

POLYURETHANE (OUTSIDE)  
SILICONE (INSIDE)

# LEAD PORTFOLIO



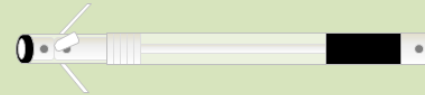
**MRI**  
SureScan™



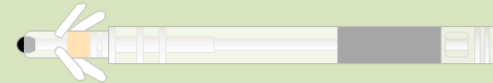
**Crystalline Actfix**



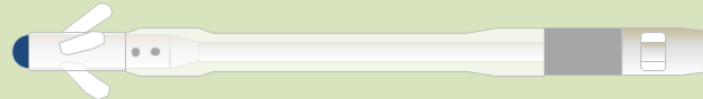
**Crystalline J**



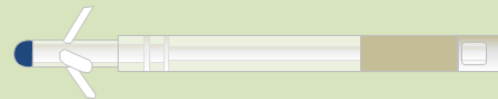
**Crystalline**



**Impulse II**



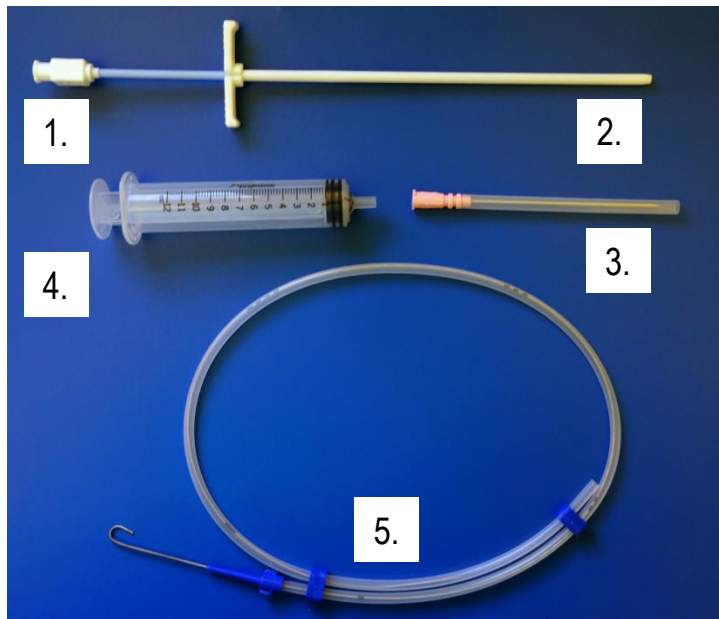
**Brilliant S+**



**Excellence PS+**

# VITATRON INTRODUCING KIT

Example: Vitatron VIK9S1



1. Introducer
2. Dilator
3. Needle
4. Syringe
5. Flexible J Guide Wire

# PROGRAMMERS



*'Encore' Mobile Programmer*



*Tablet Based Programmer*



*2090 CareLink Programmer*



# VITATRON REMOTE CONNECTED CARE



# VITATRON REMOTE CONNECTED CARE

## MYCARELINK & MYCARELINK SMART



**Vitatron**  
SureScan™ Pacemakers

Unmatched MRI Access



**vitatron** • The Pace Makers

**vitatron** • The Pace Makers