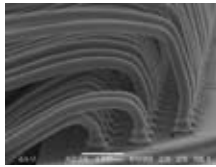


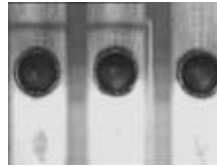
**Advanced Bonding Application**



Multi-tier wire bonding



Stacked-die wire bonding



Low-K wire bonding

The advancement in bonding technology and the market demand for faster, smaller and better product, again poses new challenges for the wire bonding process. The transition from fine-pitch (FP) to ultra fine-pitch (UFP) volume production, and the emergence of stacked die, multi-tier and low-K bonding has increased the level of difficulties in the wire bonding process with more yield loss due to lifted ball, wire short, etc.

In compliance with these new bonding requirements, SPT has embarked on an extensive study to develop a new generation, high-performance capillary. Designed with advanced process diagnostic tools, the new capillary design, known as **PI (Programmed Intelligence)** capillary has been extensively tested in a variety of wire bonders and packages. In all tests, the PI capillary has demonstrated superior bonding performance with good repeatability and portability using a wide range of bonding platforms.

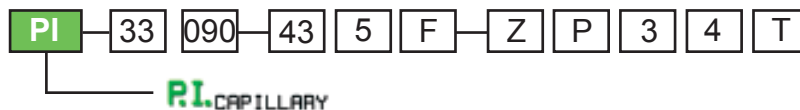
**Features:**

- Superior bonding performance with good repeatability and portability for a broad range of complex application.
- More responsive to the bonding parameters, producing better bonding integrity.

	Amplitude of Vibration (nm)		
	Design A	Design B	PI Design
	454	488	544

- Applicable for fine-pitch, ultra-fine pitch, ultra low loop, CSP, low-k and stacked die bonding.

Depending on the specific bonding application, the PI design can be used together with any existing design feature, such as the SI (for enhanced stitch bondability), DFX (for fine-pitch and ultra fine pitch) and Infinity (for extended tool life), etc.



PI CAPILLARY