

WHITE PAPER

Higher Quality Fingerprint Collection with Silicone Membranes

Taking fingerprints with the help of modern livescan devices is fast, easy and convenient. All livescan instruments must be able to collect fingerprints from a wide cross section of people—including those with very fine, worn, scarred or cracked fingerprint ridges and varying degrees of skin moisture content. However, most systems are optimized for individuals with well-defined ridges on their fingers and sufficient moisture content in their hands.

The Challenge

Problems arise when fingers are too wet or too dry. During the fingerprint collection process, if a person's hands are wet, the simple and obvious remedy is to ask the person to dry his or her fingers. However, the problem of dry fingers occurs much more frequently in real life applications. For instance, people spending many hours on airplanes tend to become dehydrated and present dry fingers at scanning stations. Individuals in arid areas, such as deserts, high plains and extremely cold environments also frequently have dry fingers. Many people who perform manual labor and older individuals tend to have worn ridges or dry hands—making fingerprint capture challenging. These physiological variations in skin characteristics must be addressed when fingerprinting large groups of people—especially in a high throughput environment, such as an airport where the cost of the capture process and the inconvenience to travelers must be minimized.

The Solution

Cross Match Technologies has developed patented silicone membrane technology that greatly improves the collection of fingerprints through livescan systems. There are several advantages to using silicone membranes for capturing live fingerprints:

- **Image enhancement.** The use of a silicone membrane allows for easy and rapid capture of fine, worn and dry finger ridge detail. Silicone membranes enhance fingerprint images regardless of skin condition—requiring less finger pressure to capture prints. The result is less distortion and more accurate, high-quality images. This is most important in situations where throughput must be maximized and customer inconvenience and field maintenance minimized. Additionally, when using silicone membranes, there is no need for lotions, moisturizers or liquid on the fingers to acquire high-quality images.
- **Protection.** The silicone membrane protects the scanner's glass platen from scratches that can occur during operation. Scratching the glass platen is a costly issue, often requiring the replacement of the entire livescan device. If, however, a silicone membrane is damaged, it can be easily replaced in seconds in the field with virtually no down time because many Cross Match livescan systems can operate either with or without the membrane.

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- **Low maintenance.** Using a silicone membrane results in less frequent cleaning, thereby increasing throughput and decreasing maintenance. When using a silicone membrane users often find they are able to collect darker and higher contrast images which allows users to lower the sensor sensitivity. This makes the livescan unit less susceptible to latent images, which can affect the captured fingerprint image. The membrane, therefore, allows longer operational periods between cleanings as compared to a plain glass platen which may require cleaning after each use. Unlike glass platens, cleaning the silicone membrane does not require a liquid cleaner or special cloth. Rather, applying a small piece of tape to the silicone membrane will remove the dirt, oils and other debris very effectively and quickly—without damaging either the membrane or the platen.
- **Easy capture.** When using livescan devices with or without a silicone membrane, there is no difference in the fingerprint capture approach. The silicone membrane is fitted invisibly atop the glass platen and its use requires no variation of fingerprint presentation technique, making it easy to use. In addition, using the silicone membrane makes capturing rolled fingerprints easier by eliminating slippage of the fingers which sometimes occurs on glass platens.

Proven Success

- Approximately 10,000 of the Cross Match ten-print livescan device users worldwide utilize silicone membranes.
- Silicone membranes, a feature both unique and proprietary to Cross Match, are a benefit to many customers.
- Just as livescan fingerprint systems forever changed the way biometric data is captured, silicone membranes have helped to make fingerprint collection easier, faster and more accurate.
- Cross Match has developed livescan technologies that maximize the advantages of patented silicone membranes.
- Silicone membranes are a cost-effective, low-maintenance solution to dealing with the difficulties of capturing fingerprints from dry skin.
- Silicone membranes are the proven advantage to increasing fingerprint image detail and eliminating rejections due to insufficient biometric data.



When in use, silicone membranes not only enhance fingerprint capture, but also protect the livescan system's glass prism.

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