

ESD GLOVES · SINGAPORE ELECTRONICS INDUSTRY

# Why ESD **Top Fit** Gloves Are the Precision Choice for Singapore's Semiconductor Fabs

By [Phil Industries](#) · ESD Safety · 5 min read

*Precision handling in a semiconductor environment demands full static control at every fingertip.*

In Singapore's semiconductor and electronics manufacturing floors, static electricity is an invisible threat that can destroy a component worth thousands of dollars in a fraction of a second. Choosing the right ESD glove isn't a minor procurement decision — it's a line of defence for your product quality.

## What Is an ESD Top Fit Glove?

An ESD Top Fit glove refers to a glove style where the anti-static polyurethane (PU) coating covers the **fingertips and the top (dorsal) surface of the fingers** — rather than the palm. This

design gives technicians near-bare-palm tactile feedback while providing full ESD protection at the touch points that matter most during fine assembly work.

The construction typically uses a seamless 13-gauge nylon or polyester knit shell interwoven with conductive carbon fibre. The PU coating is applied precisely to the fingertips, achieving electrical resistance values of  $10^6$ – $10^9$  Ohms — compliant with ANSI/ESD S20.20 and IEC 61340-5-1, the global benchmarks for ESD control in electronics manufacturing.

#### MAXIMUM DEXTERITY

Uncoated palm maintains natural grip sensitivity — ideal for handling wafers, PCBs, and micro-components that demand fine motor control.

#### ESD COMPLIANT

Conductive carbon fibre yarn continuously dissipates static charge. Meets ANSI/ESD S20.20 and IEC 61340 requirements.

#### ALL-DAY COMFORT

Seamless knit construction and breathable back of hand reduces heat build-up during extended production shifts.

#### REUSABLE & WASHABLE

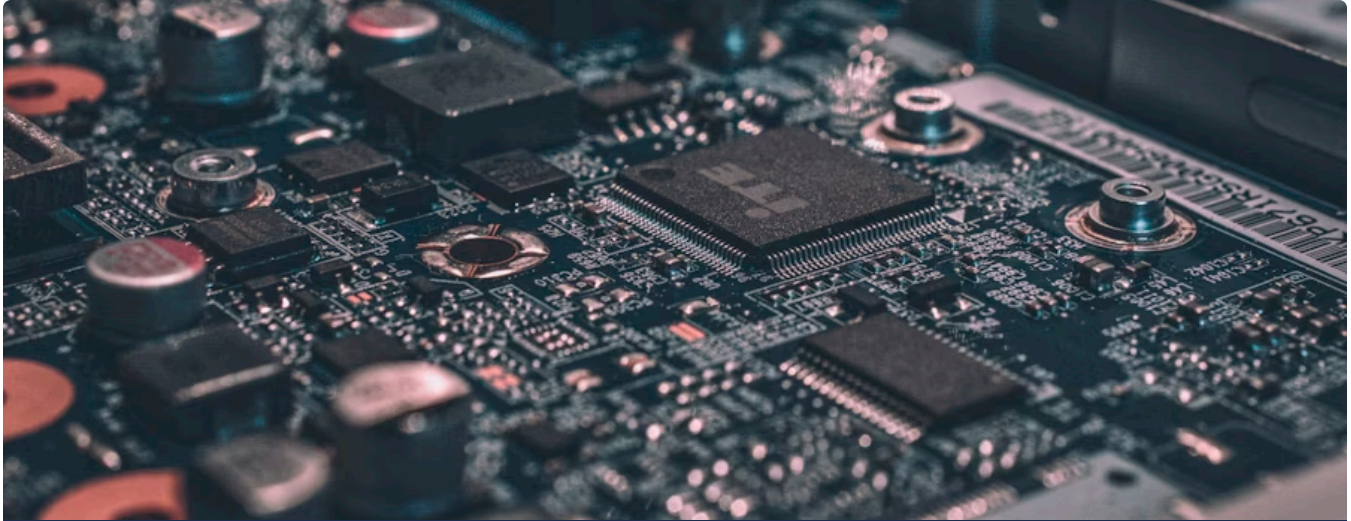
Designed for multiple uses. Mild-wash compatible — reducing per-unit cost and consumable waste on the production floor.

## Where Top Fit Gloves Excel in Singapore's Electronics Sector

Singapore is home to world-class semiconductor fabs and electronics contract manufacturers — including major players in wafer fabrication, hard disk drive assembly, and advanced PCB production. In these environments, operators frequently handle:

- Bare silicon wafers and chips sensitive to human skin oils and static
- Surface-mount components during SMT line feeding and inspection
- Optical and sensor components in medical electronics assembly
- Connectors, modules, and sub-assemblies during final test and pack

For all of these tasks, a Top Fit glove delivers the critical balance: **fingertip protection with maximum tactile feedback**. The palm remains uncoated, letting operators feel component orientation and seating feedback naturally — which reduces mis-picks, rework, and ESD-related field failures.



*Top Fit gloves are the preferred choice wherever fingertip sensitivity and static control must coexist.*

## Technical Specifications at a Glance

SPECIFICATION	DETAIL
Coating Type	Micro-foamed Polyurethane (PU) — fingertips / top of fingers
Shell Material	13-gauge nylon knit with conductive carbon fibre
ESD Resistance	$10^6$ – $10^9$ $\Omega$ (per ANSI/ESD SP15.1 / IEC 61340)
Typical Applications	Wafer handling, SMT assembly, PCB inspection, disk drive assembly
Sizing	XS to XXL — close fit for dexterity
Care	Machine washable — mild detergent, air dry
Compliance	ANSI/ESD S20.20, IEC 61340-5-1

*In ESD-sensitive manufacturing, glove selection is part of your risk management framework — not just a PPE category. The wrong glove can be compliant on paper but still generate enough charge to damage a Class 0 device. Top Fit gloves, when correctly specified, eliminate that risk at the point of contact.*

**KENNETH PEH · DIRECTOR, PHIL INDUSTRIES PTE LTD**

# Is a Top Fit Glove Right for Your Operation?

Top Fit gloves are best suited to operations where **fine dexterity is paramount** and operators need to "feel" the component as much as hold it. If your line involves inspection under magnification, manipulation of sub-gram components, or high-speed SMT feeding, the Top Fit style should be your first consideration.

For tasks involving heavier component handling, moderate grip forces, or where palm-to-component contact is frequent — a Palm Fit glove may be more appropriate. Speak to us and we'll help you match the right glove to the right task.

## Need ESD Gloves for Your Singapore Facility?

Phil Industries supplies ESD gloves for semiconductor, electronics and aerospace manufacturers across Singapore. Get expert advice and a quote today.

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BLOG POST 02

ESD GLOVES · SINGAPORE ELECTRONICS INDUSTRY

# ESD **Palm Fit** Gloves: The Workhorse of Singapore's Electronics Assembly Lines

By [Phil Industries](#) · ESD Safety · 5 min read

*ESD Palm Fit gloves are designed for high-contact handling tasks across Singapore's electronics production floors.*

When your production line involves continuous component handling — boards, housings, connectors, and assemblies passing through operators' hands dozens of times per hour — you need an ESD glove that does more than dissipate static. You need consistent grip, all-shift comfort, and confident protection. That's the ESD Palm Fit glove.

## What Is an ESD Palm Fit Glove?

An ESD Palm Fit glove features an anti-static polyurethane (PU) coating applied to the **full palm and fingers** — providing complete coverage of the hand's contact surface. Built on the same conductive nylon-carbon fibre knit shell as the Top Fit variant, the Palm Fit delivers robust ESD protection across the entire grip zone.

This design is engineered for tasks where the operator's palm is the primary interface with the component or product. Resistance values typically fall within  $10^6$ – $10^9$  Ohms, meeting the same international ESD standards — but with added grip performance and greater coverage for higher-throughput operations.

### FULL PALM COVERAGE

PU coating across the entire palm and fingers provides complete ESD protection wherever hand meets component — ideal for higher-contact tasks.

### SUPERIOR GRIP

Micro-foamed PU coating channels moisture away and maintains secure grip on boards, housings, and assemblies — even after hours of use.

### HIGH-THROUGHPUT READY

Designed for continuous production line environments. Durable PU coating maintains its anti-static and grip properties across multiple washes.

### CLEANROOM COMPATIBLE

Low-linting construction makes Palm Fit gloves suitable for Class 1000 (ISO 6) cleanroom environments common in Singapore's semiconductor sector.

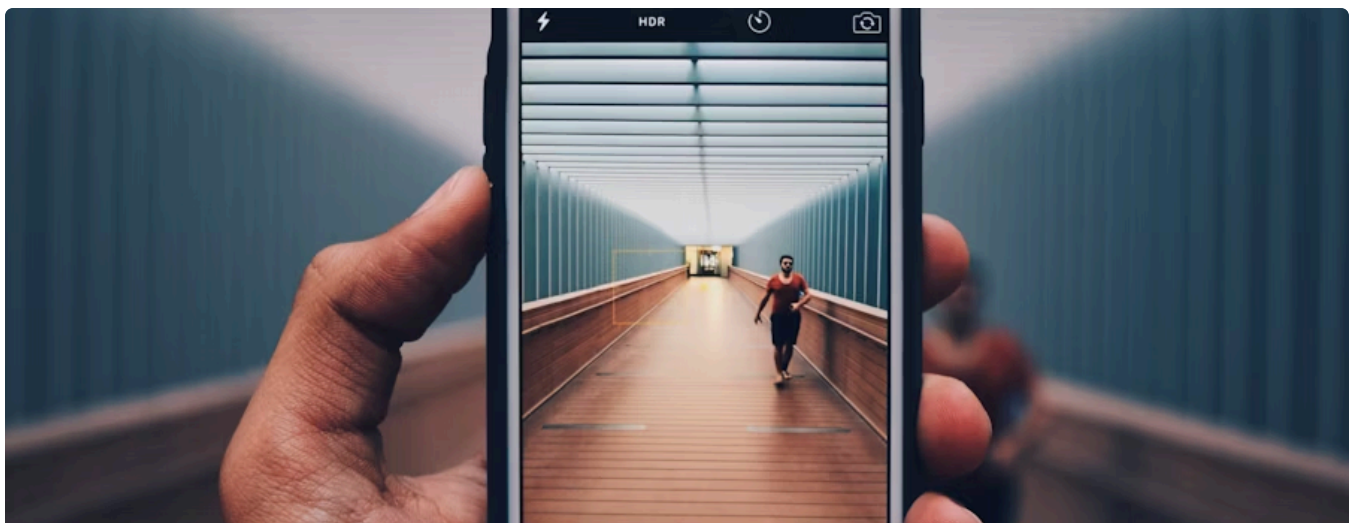
## Where Palm Fit Gloves Are the Right Choice

Singapore's electronics and semiconductor manufacturing ecosystem is among the most advanced in Asia. Facilities running PCBA lines, box-build assembly, final test, packaging, and kitting operations generate enormous glove usage — and those environments demand a glove that can keep pace.

ESD Palm Fit gloves are the preferred specification when operators are:

- Handling populated PCBs and finished electronic assemblies
- Performing quality inspection on medium-to-large electronic components
- Loading and unloading products from test fixtures and jigs
- Packing and kitting ESD-sensitive finished goods
- Working on aerospace electronic unit assembly and test (MIL-STD-1686, ESDS requirements)

In all of these scenarios, the operator's palm is actively engaged — and the Palm Fit's full coating ensures no part of the hand becomes a static source or discharge path.



*Full-palm ESD protection is essential wherever board and component handling occurs at volume.*

# Palm Fit vs Top Fit — How to Choose

Many customers ask us whether they need a Top Fit or Palm Fit glove. The honest answer is: **it depends on the task**. Here's a practical decision guide:

CONSIDERATION	TOP FIT	PALM FIT
Primary Contact Zone	Fingertips	Full palm & fingers
Dexterity Priority	Maximum (bare palm)	High (flexible PU)
Grip Area	Fingertips only	Full hand surface
Best For	Fine assembly, inspection, wafer handling	PCB handling, box build, packing, test
Component Size	Very small / micro	Small to medium
ESD Standard	Both meet ANSI/ESD S20.20 & IEC 61340-5-1	

The good news: both types are available from Phil Industries with expert specification support. We routinely advise facilities running multiple workstation types to stock both — specifying each to the right task zone on the floor.

*A common mistake is selecting a single glove type for the entire facility. In a typical electronics contract manufacturer, you'll find wafer inspection, board assembly, final test, and packing happening under one roof — each needing a different glove specification. We help our clients map glove types to tasks, not just to departments.*

**KENNETH PEH · DIRECTOR, PHIL INDUSTRIES PTE LTD**

## ESD Compliance in Singapore: What You Need to Know

Singapore's electronics and aerospace manufacturers are typically required to maintain ESD control programmes aligned to **ANSI/ESD S20.20** or **IEC 61340-5-1**. For customer-audited facilities — including those supplying to aerospace primes like ST Aerospace, or semiconductor clients like Micron — ESD glove compliance forms part of the audit checklist.

Selecting certified ESD Palm Fit gloves from a trusted distributor like Phil Industries means your purchasing records, product datasheets, and compliance documentation are always in order. We supply gloves with full technical documentation on request — including conformity declarations and test data.

## Stock ESD Palm Fit Gloves for Your Line

Phil Industries supplies ESD gloves in bulk to electronics manufacturers, aerospace assemblers, and pharmaceutical facilities across Singapore. Talk to us about your volume requirements.

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