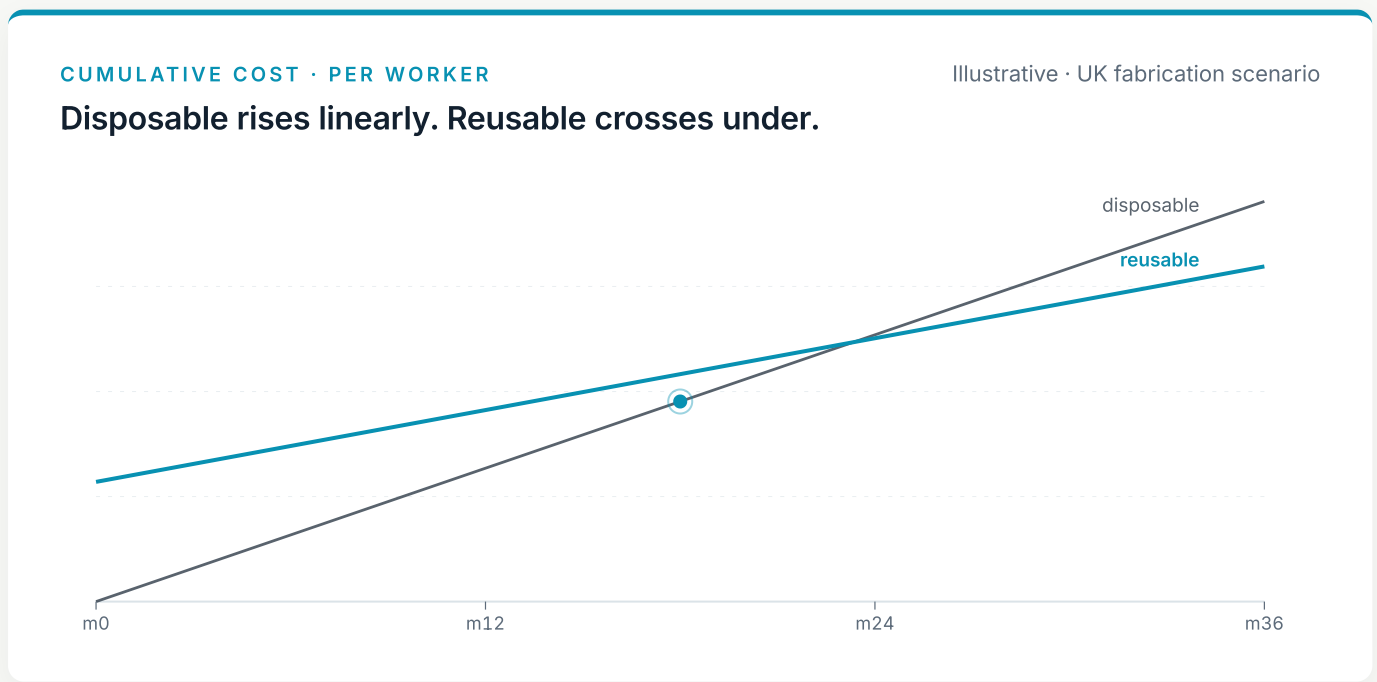


RPE COST CALCULATOR · COMPANION GUIDE

The true three-year cost of RPE.

A free calculator and guide for UK procurement and HSE teams comparing disposable and reusable respiratory protective equipment.



5

cost categories most procurement teams miss

36

months of comparison built into the model

£0

no email gate · no signup · UK defaults inside

— 02 · THE PROBLEM

The hidden cost in RPE buying.

Procurement is judged on unit price. Two FFP3 masks at £3.20 and £4.10 produce one obvious answer.

Until you do the maths properly.

Unit-price decision making misses five cost categories that quietly change the answer: fit-testing, replacement frequency, training, health surveillance, and programme admin overhead. Fold those in over three years and the cheaper mask is often the more expensive programme.

The calculator on the following pages gives you the maths. The five categories below tell you what to put into it, and where the numbers come from.

WORKED ILLUSTRATION

The £3.20 mask wins on unit price. The £4.10 mask wins on three-year cost when fit-test interval and replacement frequency are factored in.

WHAT THE UNIT-PRICE VIEW LEAVES OUT

<p>01</p> <p>Fit-testing</p> <p>£60–£120 / test</p>	<p>02</p> <p>Replacement</p> <p>shifts → years</p>	<p>03</p> <p>Training</p> <p>£30–£50 / worker</p>	<p>04</p> <p>Surveillance</p> <p>£25–£40 / year</p>	<p>05</p> <p>Admin overhead</p> <p>8–12% of direct</p>
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Ranges sourced from BSIF supplier data, NHS Supply Chain framework pricing, and IOSH surveys. See page 6.

— 03 · THE CATEGORIES

Five cost categories that change the answer.

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- | | | |
|-----------|---|--|
| 01 | Fit-testing.
Every wearer of tight-fitting RPE needs a fit-test. Most programmes re-test every 24 months. Each test takes about one hour of the wearer's time off the job. For a workforce of fifty, that is fifty hours of paid productivity, twice over three years, before you have bought a single mask. | TYPICAL UK
£60–£120 / test |
| 02 | Replacement frequency.
Disposables are single-shift items per HSE guidance. Reusable filters last between five and twenty shifts depending on the environment. Mask bodies last two to five years. Get the assumptions wrong and the comparison flips. Get them right and you can see the break-even point in months. | TYPICAL UK
5–20 shifts (filters) |
| 03 | Training.
Initial training on RPE selection, fit, use, and removal is required under the Control of Substances Hazardous to Health Regulations. Amortise over the wearer's expected tenure, not the year they joined. | TYPICAL UK
£30–£50 / worker |
| 04 | Health surveillance.
Where there is a respirable hazard, health surveillance is mandatory under COSHH. Often forgotten in the unit-price comparison because it sits in a different budget line. | TYPICAL UK
£25–£40 / yr |
| 05 | Programme admin overhead.
Records, reviews, supplier management, audit preparation. Procurement teams without an admin line are usually understating the real cost. | TYPICAL UK
8–12% of direct |
-

— 04 · HOW TO USE IT

Five minutes to a real number.

Open the Excel workbook. The Inputs sheet is where you enter what you know. The Outputs sheet does the rest. Five steps.

01 Enter your workforce.

Number of wearers, daily RPE hours, working days per year, and your wearer fully-loaded hourly cost (used to value lost productivity during fit-tests).

02 Enter the disposable scenario.

Unit price, masks per shift per wearer, and disposal cost if you account for it separately.

03 Enter the reusable scenario.

Initial mask cost, filter cost, filter life in shifts, expected mask lifetime in years, and annual cleaning and storage cost.

04 Check the common programme costs.

Fit-test cost and interval, training cost, surveillance cost, and admin overhead percentage. The workbook ships with UK-typical defaults you can adjust.

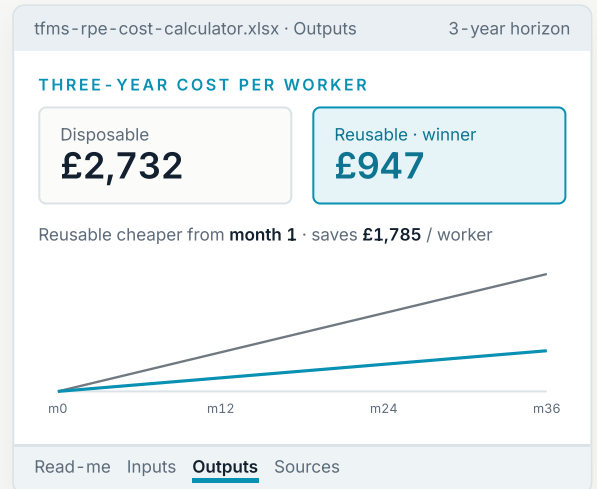
05 Read the Outputs sheet.

Three-year cost per worker for both scenarios. Break-even point in months. Cost breakdown by category. Three auto-generated sensitivities flagging what changes the answer.

INPUTS SHEET

tfms-rpe-cost-calculator.xlsx · Inputs		UK GBP
YOUR WORKFORCE		
Number of wearers using RPE regularly		50
Daily RPE wear hours (avg)		4.5
Working days per year		225
Wearer fully-loaded hourly cost (£/hr)		22.00
DISPOSABLE SCENARIO		
Unit price (£/mask)		3.20
Masks per shift per wearer		1
Disposal cost per mask (£)		0.00
Read-me <u>Inputs</u> Outputs Sources		

OUTPUTS SHEET



UK-typical defaults shown. Your numbers will move with your fit-test interval, reusable mask cost, filter life, and worker tenure.

05 · METHODOLOGY NOTE

About the risk-adjusted line.

THE FORMULA

Probability of compliance failure per year

BSIF 2025 testing data

×

Expected cost of a compliance event

HSE prosecution register median

=

Expected annual compliance cost

A planning number, not a forecast

There is one optional input in the calculator that is worth a separate page: the risk-adjusted line. When you turn it on, the calculator adds an estimated annual compliance-failure cost to each scenario. The number is the product of two values you control.

The default probability values come from public BSIF testing data. In 2025, **84% of RPE bought from non-BSIF-registered suppliers failed filtration tests**. The default cost of a compliance event uses the median UK HSE prosecution outcome from the public prosecution register for respirable-hazard cases.

We made it optional, and off by default, for three reasons.

First, the inputs are estimates. They will not match any single workplace exactly. Procurement teams should set their own values, not inherit ours.

Second, the calculation is a planning number, not a legal exposure forecast. It belongs in the same conversation as "what would it cost us to lose a key supplier" — useful for thinking, not for litigation.

Third, we do not want to ship a tool that bullies procurement into a decision. The risk-adjusted line exists so that the cost of getting it wrong is visible alongside the cost of getting it right.

If the line is unhelpful for your scenario, set the probability to zero in both columns and the calculator returns to a pure programme-cost comparison. We will update the default values annually as BSIF testing and HSE prosecution data refresh.

— 06 · REFERENCES

Where the numbers come from.

SOURCES

BSIF	Registered Safety Supplier scheme · 2025 testing programme	↗
HSE	Prosecution register · public data	↗
HSG53	Respiratory Protective Equipment at Work	↗
BOHS	Annals of Work Exposures and Health	↗
NHS SC / CCS	Supply Chain & Crown Commercial framework pricing	↗
Industry	SHP Online · Safety & Health Practitioner · IOSH Magazine	↗

WHAT THIS TOOL DOES NOT DO

- 01** All figures in GBP. UK-only defaults.
- 02** No NPV discounting over the three-year horizon. Flagged as a known simplification — at typical UK discount rates the qualitative comparison does not change, but the absolute numbers will read slightly high.
- 03** Multi-hazard environments may need separate calculations.
- 04** This tool is a planning aid, not a legal compliance assessment. Where in doubt, consult a qualified occupational hygienist.

VERSION

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DOWNLOAD

thefacemaskstore.app/rpe-calculator