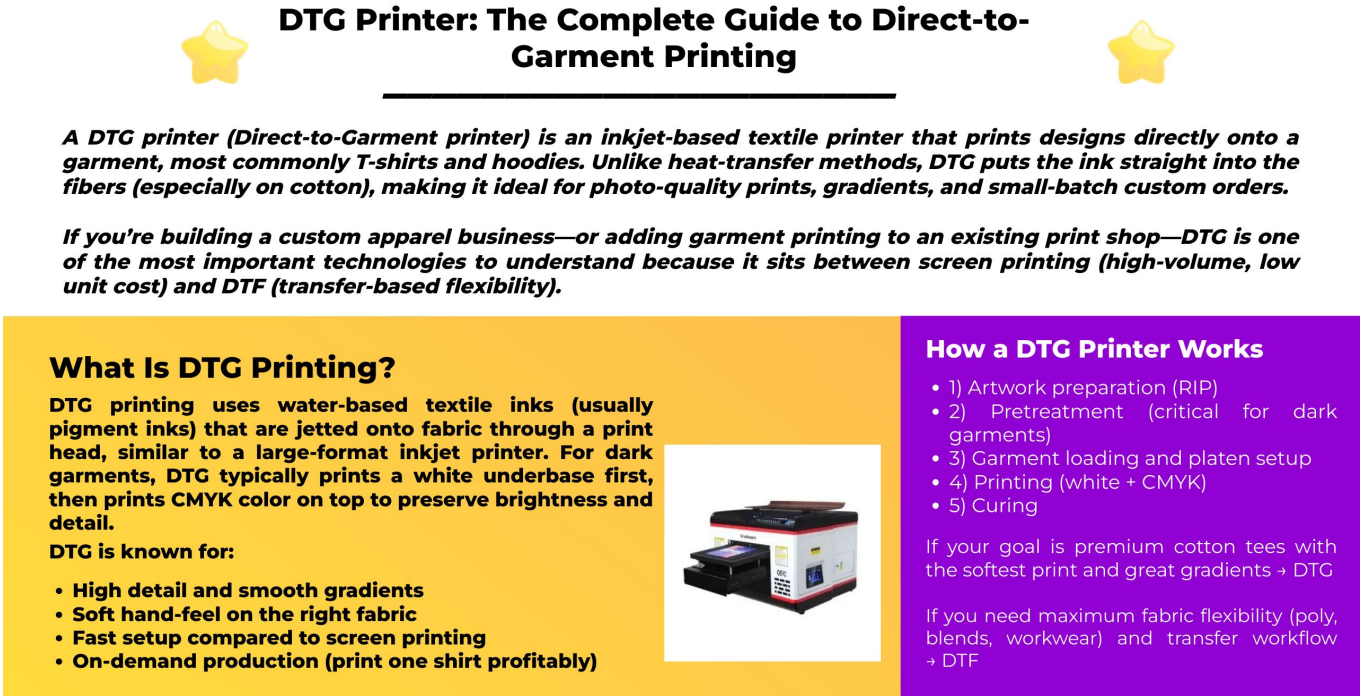
DTG Printer, The Complete Guide to Direct-to-Garment Printing

https://www.erasmart.com/dtg-printer-guide/



DTG Printer: The Complete Guide to Direct-to-Garment Printing

A **DTG printer (Direct-to-Garment printer)** is an inkjet-based textile printer that prints designs **directly onto a garment**, most commonly T-shirts and hoodies. Unlike heat-transfer methods, DTG puts the ink straight into the fibers (especially on cotton), making it ideal for **photo-quality prints, gradients, and small-batch custom orders**.

If you're building a custom apparel business—or adding garment printing to an existing print shop—DTG is one of the most important technologies to understand because it sits between **screen printing** (high-volume, low unit cost) and **DTF** (transfer-based flexibility).

What Is DTG Printing?

DTG printing uses water-based textile inks (usually pigment inks) that are jetted onto fabric through a print head, similar to a large-format inkjet printer. For dark garments, DTG typically prints a **white underbase** first, then prints CMYK color on top to preserve brightness and detail.

DTG is known for:

- High detail and smooth gradients
- Soft hand-feel on the right fabric
- Fast setup compared to screen printing
- On-demand production (print one shirt profitably)

How a DTG Printer Works

1) Artwork preparation (RIP)

Your design is processed by RIP software, which controls:

- Ink limits (especially white)
- Pass count and resolution
- Color profiles for different garment types
- Underbase strategy for dark shirts

2) Pretreatment (critical for dark garments)

Pretreatment is a chemical solution applied to the garment to help:

- White ink bond properly
- Colors appear vibrant
- Reduce bleeding and improve wash durability

Pretreatment can be:

- **Manual** (sprayer + heat press)
- **Automatic** (pretreat machine for consistent results)

3) Garment loading and platen setup

The shirt is stretched flat on a platen. Proper platen height and tension are essential for:

- Sharp prints
- Avoiding head strikes
- Consistent registration

4) Printing (white + CMYK)

- **Light garments**: often CMYK only (less prep, faster)
- **Dark garments**: white base first, then CMYK

5) Curing

Curing fixes the ink into the garment using a heat press or conveyor dryer, ensuring:

- Better wash resistance
- Reduced tackiness
- Stable final color

DTG Printer vs DTF Printer (Quick Comparison)

DTG and DTF often compete for the same “custom T-shirt” market, but their strengths differ.

Feature	DTG (Direct-to-Garment)	DTF (Direct-to-Film Transfer)
Best for	Cotton, premium feel, photo prints	Broad fabric compatibility (cotton/poly/blends), transfers
Workflow	Print on garment + cure	Print on film + powder + cure + heat press
Hand-feel	Often softer on cotton	Can feel slightly thicker depending on film/powder/ink load
Dark shirts	Needs pretreat + white base	Typically easier on darks (still requires good settings)
Small orders	Excellent	Excellent
Maintenance	Can be demanding (white ink)	Also demanding (white ink + powder handling)
Versatility	Limited to garments (and some textiles)	Transfers can go onto many garment types and some other fabrics

Rule of thumb:

- If your goal is **premium cotton tees with the softest print** and great gradients → **DTG**
- If you need **maximum fabric flexibility** (poly, blends, workwear) and transfer workflow → **DTF**

Best Fabrics for DTG Printing

DTG performs best when ink can absorb and anchor into the fibers.

Best choices

- **100% cotton** (combed ringspun is excellent)
- High-quality cotton blends with high cotton content

More challenging

- **Polyester-heavy garments** (dye migration risk, adhesion issues)
- Low-quality, heavily textured, or “too fuzzy” fabrics
- Water-repellent or heavily treated fabrics

If you plan to print on a wide range of synthetics, DTG may not be your only technology.

DTG Print Quality: What Makes It Look “Pro”

Professional DTG output isn’t just about the printer—most quality issues come from process control:

Key factors

- Pretreat consistency (evenness + correct amount)
- Correct curing time/temperature
- Platen height (too high/low causes blur or head strikes)
- White ink settings (opacity vs bleeding vs cracking)
- Humidity control (prevents clogging and inconsistent ink flow)
- Color profiles tuned for your garment brands

DTG Printer Costs: What You Should Budget For

DTG profitability depends on **total cost per print**, not just machine price.

Cost buckets

1. **Printer + warranty/service**
2. **Ink** (white ink is usually the biggest driver on dark shirts)

3. **Pretreatment fluid**
4. **Maintenance supplies** (cleaning solution, wipers, caps, filters)
5. **Curing equipment** (heat press or conveyor dryer)
6. **Labor time** (pretreat, load, print, cure, QA)

What impacts cost per shirt the most

- Coverage area (full-front uses much more ink than a small logo)
- White underbase usage (dark garments cost more)
- Rejects/reprints from pretreat or curing mistakes

DTG Maintenance

DTG printers can produce amazing prints, but they demand discipline—especially with white ink.

Daily best practices

- Nozzle check + test print
- Short cleaning cycle (as needed)
- Keep capping station clean
- Keep printer environment stable (temperature/humidity)
- Agitate/recirculate white ink if your system requires it

Weekly/monthly

- Deeper cleaning routines
- Replace consumables (wipers, dampers/filters depending on model)
- Inspect platen and height calibration

Why DTG clogs happen: White ink contains pigment that can settle. If the printer sits idle, clogs become more likely. A consistent routine is the difference between a profitable DTG shop and constant downtime.

Common DTG Printing Problems (and Fixes)

1) Dull colors on dark shirts

Cause: Underbase too thin, bad pretreat, incorrect profile
Fix: Adjust white density, improve pretreat evenness, recalibrate profiles

2) Pretreatment “box” marks

Cause: Over-pretreat or uneven spray, wrong press settings
Fix: Use a consistent spray pattern, reduce pretreat volume, adjust press time/temp

3) Ink cracking after washing

Cause: Too much ink load, under-curing, wrong pretreat
Fix: Tune ink limits, confirm curing parameters, verify pretreat level

4) Head strikes / blurry prints

Cause: Garment not flat, platen height wrong
Fix: Re-load garment, reduce wrinkles, re-check height clearance

5) Clogging/nozzle dropouts

Cause: Idle printer, poor humidity, dirty cap/wiper
Fix: Daily nozzle checks, stabilize environment, keep cap/wiper clean

---

DTG Printer Buying Guide

Before buying, decide what you’re optimizing for: speed, quality, reliability, or lowest upfront cost.

1) Production volume

- How many shirts per day/week?
- Mostly light shirts or dark shirts?
- Small logos or full front prints?

2) Print size and platen system

- Standard adult platen vs oversized prints
- Sleeve/neck label platens for upsells
- Quick-change platens reduce downtime

3) White ink management

Look for:

- White ink circulation/recirculation design
- Easy maintenance access
- Strong support documentation

4) Pretreat workflow

If you print dark shirts daily, budget for:

- A consistent pretreat method
- Either a good manual station + technique or an automatic pretreat unit

5) Service and parts availability

DTG is a maintenance-heavy category. Fast parts + knowledgeable service can matter more than tiny spec differences.

Best Use Cases for DTG Printing

DTG shines when:

- You sell **on-demand custom tees** (Shopify/Etsy/marketplaces)
- You need **photo prints** or complex artwork
- You do **small batch** runs for events, bands, creators
- You want a premium look on cotton garments

DTG is less ideal when:

- You need the lowest cost at high volumes (screen printing wins)
- Your garments are mostly polyester or performance wear (DTF or other methods may fit better)
- You want decals/transfers for many product types (UV DTF or DTF)

FAQ: DTG Printers

What does DTG stand for?

DTG stands for **Direct-to-Garment**, meaning the printer prints directly onto the fabric.

Do I need pretreatment for DTG?

Usually:

- **Light shirts:** sometimes not required (depends on ink and garment)
- **Dark shirts:** typically yes, pretreat is essential for white ink performance

Is DTG durable?

Yes—when pretreat and curing are done correctly. Most durability complaints trace back to process issues, not the technology.

DTG vs screen printing: which is better?

- **DTG:** best for small runs and high detail
- **Screen printing:** best for large runs with lowest unit cost

Can DTG print on polyester?

Some systems can, but it’s generally more challenging than cotton due to dye migration and adhesion behavior. Test your exact garments.

Conclusion: Is a DTG Printer Worth It?

A DTG printer is worth it if your business needs:

- On-demand, high-detail garment printing
- Premium cotton results
- Fast setup and flexible order sizes

To succeed with DTG, treat it like a production system, not just a machine: **pretreat consistency + curing discipline + maintenance routine** are what turn DTG into a reliable profit center.