

3D Printed PETG Diagnostic Prosthetic Sockets

Clinician Information & In-Office Guidance

What Is a 3D Printed Diagnostic Socket?

3D printed diagnostic sockets are fabricated using industrial FDM (Fused Deposition Modeling) 3D printers. They serve the same clinical purpose as traditional diagnostic sockets while offering faster turnaround and consistent geometry.



Material Overview – PETG

PETG (Polyethylene Terephthalate Glycol) is a durable, impact resistant thermoplastic commonly used for prosthetic diagnostics.

- Vivak® is a common PETG brand name
- Tested and approved for in office diagnostic use
- Will **not delaminate along layer lines**
- Maintains structural integrity during clinical use

Strength & Wall Thickness

- **4 mm** – Patients under 200 lbs
- **5 mm** – Patients over 200 lbs or bilateral patients

These thicknesses balance **strength, weight, and modifiability**.

Fabrication Characteristics

- Manufactured on industrial FDM 3D printers
- Printers undergo routine calibration for dimensional accuracy
- Visible layer lines are normal

Clinical Notes

- No increase in donning or doffing friction
- Slightly reduced socket clarity (cosmetic only)
- No negative impact on fit or function



In Office Modification

PETG is heat modifiable

- Use a heat gun on low setting for controlled modifications
- Uniform wall thickness allows predictable shaping
- Use caution if applying a torch to avoid localized overheating

Grinding & Finishing

- Modifies similarly to conventional diagnostic plastics
- Standard grinding and finishing techniques apply

Suspension Compatibility

NOTE: Locks are not provided with the socket

Supported Suspension Options:

1. **Shuttle Lock**
 - 65 mm distal void
 - Compatible with IN, Bulldog, or APC locks
2. **Coyote Drop In Airlock**
3. **Lanyard Suspension**
 - Void for KISS or Bulldog lanyard lock
 - Proximal anterior chafe installed



Anatomical & Suction Use

- Anatomical sockets can maintain suction or vacuum when used with a sleeve

Current Limitation

- Socket mounted valves cannot be printed
- Plate mounted valves must be installed in office

Ordering & Turnaround

- Order via: www.hangerfabrication.com/prosthetics
- Typical turnaround: 1–2 business days + shipping

Key Clinical Takeaways

- Same clinical function as traditional diagnostic sockets
- Strong, reliable, and modifiable
- Faster turnaround than conventional fabrication
- Familiar fabrication and modification techniques
- Cosmetic differences do not affect clinical performance