Tgrease 2500
Screen Printing Application Guide

Overview: The Application Guide is intended to provide information for the customers who have never silk screened thermal grease before.

Materials:

All components and part numbers listed were purchased from www.dickblick.com unless otherwise noted. Comparable substitutes may be used as well.

- 43420-1012 8” x 10” x 1 1/8” wood frame
- 43307-1007 Ulano TZ Fotocoat emulsion
- 43405-xxxx Monofilament Polyester Mesh (110, 125,140 inch count)
- 44911-0100 Blick Tite-stretch cord
- 43106-1006 Urethane Stay-Sharp Squeegee

Other useful tools:

- 43012-1009 Blick Fotolite exposure lamp
- 43012-0000 250w exposure bulb
- 28916-1001 Plastic Squeegee
- 44903-3002 Red Polyethylene screen tape
- 43101-1005 Cord Setter
- DESLJR Delta Brightlab Jumbo Red safelite, available from www.bhphotovideo.com
- A hammer
- A custom fixture, to be detailed in this procedure

Building your screen

Selecting the proper fabric

In selecting a screen a rule of thumb is the finer the pitch the thinner the coating of grease. Also you have better control of thickness tolerance with finer pitch screen.

We have found that three mesh sizes will work, 110, 125, and 140. Mesh sizes above 140 will not allow grease to transfer to the heatsink and mesh sizes below 110 transfers an excessive amount of grease.

Mesh	Approx. Thickness	Tolerance
110	0.005”	± 0.002”
125	0.004”	±0.0015”
140	0.003”	±0.001”

Tgrease 2500
Screen Printing Application Guide

Attaching the fabric

For this you will need the wood frame, polyester mesh, stretch cord and the cord setter/chisel/flathead screwdriver/old key/etc. This document assumes you are printing onto an approximately 2" x 2" surface, such as the base of a heatsink. If your device is larger than 4" x 4", you will need to use a larger frame than specified.

Cut out a section of mesh fabric approximately 12" x 14". Lay out the wood frame, groove side up and place the fabric over it roughly centered. The stretch cord is to be pushed into the groove, trapping the fabric to board. While this could be done with staples, the stretch cord allows for tightening and creates a more even tension across the surface of the screen, which is important in getting a good print.

Use the pointed end of the cord setter to begin the threading process. A hammer can be useful in this process. Tap the end of the thread in at one corner of the groove, embedding the mesh with it. Drive the Cord in about 2/3 of the way, allowing leeway to tighten the mesh as needed later. Use the corner of the Cord setter as your main threading tool, working it along the cord, all the way around the board. Stretch and spread the fabric as needed to prevent large wrinkles from forming.

Screen surface should show no slack at all. Soft spots near the edges should be tightened by insuring the cord is deeply set into the groove. The screen should deflect approximately 1/4" with light pressure.

Coating the screen

In this step you will create the window through which your print will be applied. You will need the Fotocoat emulsion kit, a squeegee or tongue depressor, a darkroom, duct or screen tape, a sink and soap. We recommend using the Jumbo Red Safelite as the light source for your darkroom. If using our 'useful tools', the plastic squeegee works well for this, the stay-sharp is for the printing operation. **All steps in this section are to be done in the darkroom!**

Mix the Fotocoat emulsion per instructions included in the box. This will sensitize it to white light so that it cures when exposed. It should be kept closed and refrigerated when not in use.

Pour some of the emulsion onto the screen and spread it thoroughly. Coat the entire screen out to the cord on both sides, making multiple passes with the squeegee to insure the mesh is flooded. Scrap away excess emulsion, it will impede the drying process. The mesh should be thoroughly coated but not dripping. Place the screen in a warm, dry and dark place for 1 – 2 hours to allow it to dry to the mesh.

Cut the tape to the dimensions and shape you wish to screen print. It is easier to apply the tape to wax paper or another release liner before cutting to an exact size. You will need two of these, mirror images if they are an irregular shape. Apply them to opposite sides of the screen, holding the screen up to the safelight to ensure they are properly lined up. Try to get the tape as close to centered as possible within the 8" x 10" window.

Tgrease 2500
Screen Printing Application Guide

Turn the lights on. Replace the Jumbo Red Safelite with the 250 watt exposure bulb and sit the screen directly under the lamp for 20 minutes. The screen will noticeably change color from green to blue. The blue emulsion is cured and waterproof. Under the tape will be uncured green emulsion. Take the frame to a sink, remove the tape and quickly and completely scrub away the uncured emulsion. An abrasive soap can be helpful for this. Once the formerly taped surface is cleaned down to empty mesh, your screen is finished.

Building your fixture

The exact design of your fixture depends on what you will be printing onto. For our example, we will assume a 3" x 3" x 2"(height) heat sink. The fixture will consist of a baseboard, a holder for the heatsink and a spacer to hold your screen at the proper height. The mesh screen should sit about 3/8" above the surface you wish to screen. See the last page for diagrams on fixture layout. Consult Thermagon for fixture design assistance.

Screen Printing Tgrease 2500

1. Place the heat sink in your screen printing fixture.
2. Using a tongue depressor, apply Tgrease 2500 generously over exposed mesh.
3. Using a Urethane Stay-sharp squeegee, spread the grease over the mesh, flooding the screen thoroughly.
4. Place the screen onto the fixture.
5. Holding the squeegee at a 45 degree angle to the screen surface, drag it slowly and firmly across the printing area, using even pressure. With practice, the screen will empty onto the heat sink in a single pass.
6. Remove and inspect heat sink.