



HEM

HT SERIES TIM APPLICATION NOTES DISPENSE VERSION

Honeywell

Overview

- **Product Introduction**
- **Handling & Storage Conditions**
- **Equipment / Tooling**
- **Dispense Process**
- **Rework Process**

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Product Introduction: HT Series

- Thermal Interface Material [TIM] designed with compression properties for applications with bond line thickness 0.3 – 1.5mm
- Dispensable paste suitable for manual, semi-auto and fully automated dispense processes
- Syringe Sizes: 10cc, 30cc, 280cc, other container like 1 and 5 gallons



Property	HT3000	HT3500	HT4500	HT5010	HT7000	HT9000C	HT10000	HT10000C
Thermal Conductivity (W/mK)	3.5	3.5	4.5	5.0	7.0	9.0	10.0	10.0
Min.BLT(mm)	0.15	0.1	0.06	0.14	0.19	0.2	0.15	0.15
Thermal Impedance(°C.in ² /W) (1mm@10psi)(Typical Value)	0.5	0.5	0.33	0.28	0.21	0.17	0.15	0.15
Dispense Rate (g/min) 30cc syringe with no tip attachment, 0.100' orifice @0.6Mpa pressure	60	25	60	14	17	22	15	20
Breakdown Strength (kV/mm)	>9	>7	>6	>8	>10	>10	>10	>10
Density (g/cm ³)	3.1	3.2	3.3	3.4	3.45	3.4	3.45	3.3
Out Gassing (TML)	<0.5%	<0.5%	<0.5%	<0.5%	0.05%	<0.4%	0.05%	<0.4%
Color	Yellow	Red	Green	Grey	Dark Red	Blue	Dark Grey	Blue
Feature	Heat Curable	Pre-cured Heat Curable High Flow Rate	Low Viscosity Printable	High Thermal Performance	High Thermal Performance	Heat Curable	High Thermal Performance	Heat Curable

Handling Method & Storage Condition

- **Storage conditions**
 - **Shelf life=12months at 0-35°C, ≤65% Relative Humidity, (except HT3000, HT9000C, HT10000C : shelf life=6 months at -15 °C ~5 °C, ≤65%)**
- **Store syringe in horizontal position. Keep away from incompatible materials as outlined in the MSDS.**
- **Do not handle, store or open the container near open flame and/or source of heat or sources of ignition.**
- **Keep syringe tightly closed except when dispensing TIM.**

Equipment / Tooling

Dispense Equipment

- Auto or Semi-Auto is recommended
- Air pressure or motor controlled auger screw valve
- Auto dispenser with programmable motion control for precise pattern dispensing



Suggested Vendor:
Nordson EFD
www.nordsonefd.com
Charlie.chen@nordson.com



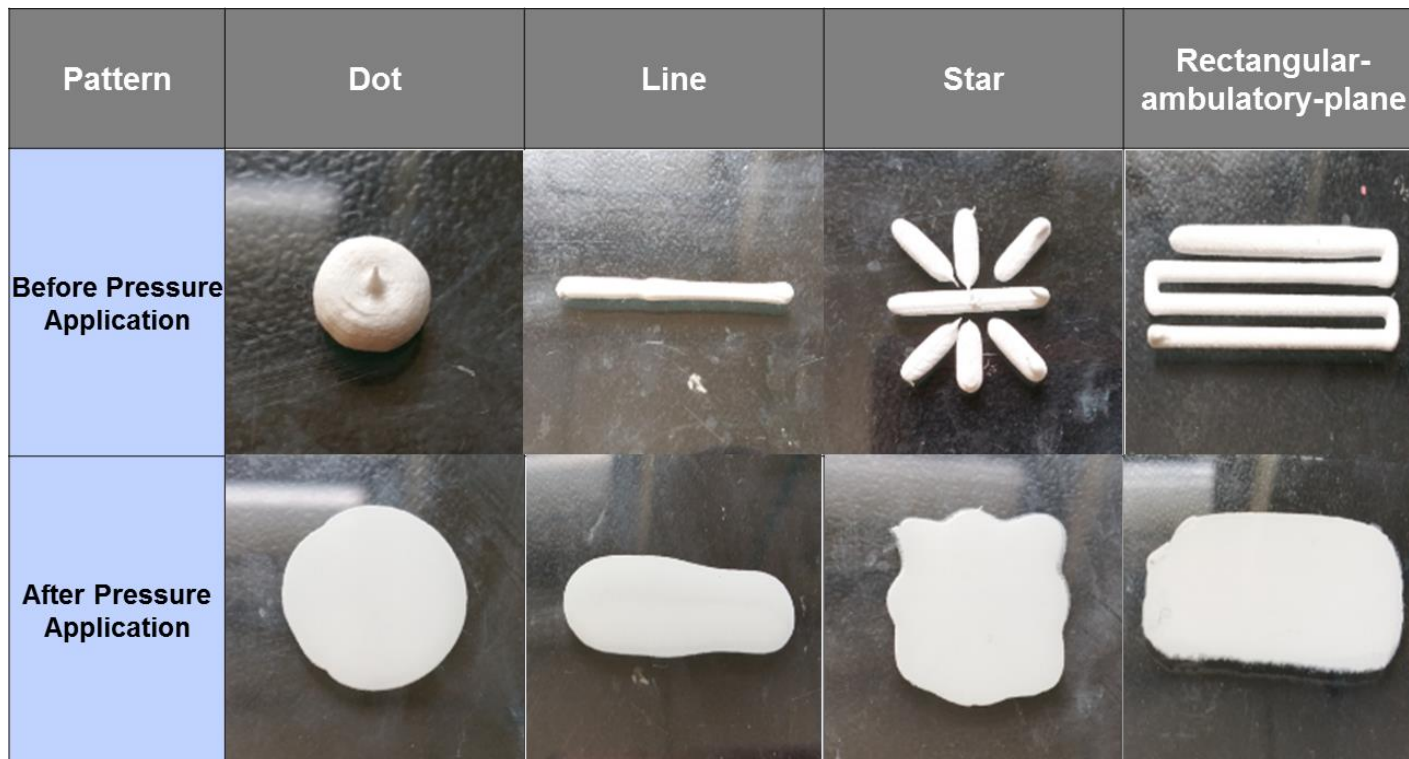
Dispense Nozzle / Needle Tip

- Plastic or Stainless steel
- Diameter size based actual application.
- Narrow tip nozzle for small/thin applications
- Large tip nozzle for big/thick applications



Recommended Dispense Patterns

- **Dot pattern:** ultra small pad application
- **Star pattern:** small and square application
- **Rectangular-ambulatory-plane pattern:** large/thick application
- **Custom design:** based on actual application, coverage and surface; test validation is recommended



Rework Method

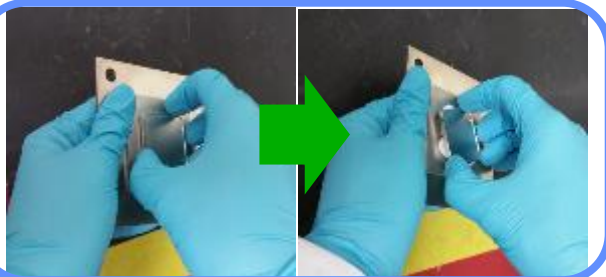
- **If rework is required, TIM can be easily removed**
- **Manually remove TIM material from the surface. A hard plastic edge may be applied to assist the removal of dried application as well**
- **Use an appropriate cleaning solvent such as acetone, IPA or toluene to remove any residue**
- **Solvent can be applied to soften and remove the dried applications.**
- **Re-dispense TIM material on the cleaned surface**

Rework Method

1

Detach the interface, using a gentle twisting and lifting motion.

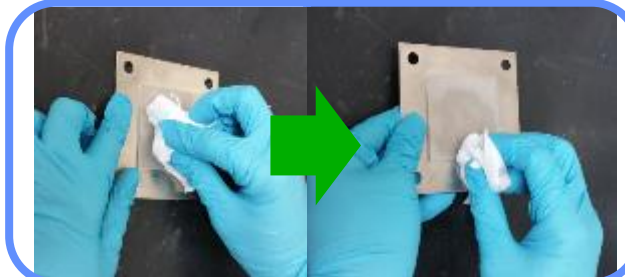
(Take care not to mechanically damage the silicon during this step, review the device architecture to assure the silicon is not bumped.)



2

Once removed, use a lint free towel to manually wipe the residue on both interfaces. To further clean the interface, acetone, IPA or toluene maybe used.

(To protect the operator, wear disposable gloves during this step.)



3

Ensure interfaces are clean & free of contaminants. Repeat the dispense process for application. If dirty, repeat step 2 in removal procedure to clean the surfaces.

(Allow 5mins for solvent to dry before next step)