Fastelset-X is a high performance thermoset epoxy resin adhesive film activated by heat and available in a few free standing film thicknesses. Fastelset-X is designed to adhere to a wide variety of substrates including plastics, glass, ceramics, FR4, aluminum, copper and stainless steel materials. Once heated to its required low temperature quick setting activation cure temperature, Fastelset-x quickly catalyzed cure process creating a strong and permanent bond for both small and large area requirements between similar or dissimilar substrates.

As a solvent based dry-to-the-touch epoxy film, Fastelset-X can be die cut to match a wide range of mounting and sealing outlines. Typical applications can include adhering low surface energy substrates together through heat press or common lamination techniques, electronic component mounting, automotive assembly (due to shock and vibration resistance) or general device assembly. As a die cut adhesive pad, Fastelset-X allows for quick and clean “drop-in-place” installation/setup and instantly ready to be heat cured above it’s minimum activation temperature of 250°F / 120°C. Fastelset-X can also be applied with respect to preliminary fixturing at recommended tacking temperatures without worry of a permanent thermoset / full cure.

Curing Schedule
Full cure heating schedule options

250°F / 120°C……………60 to 90 minutes
265°F / 130°C……………45 to 60 minutes
350°F / 176°C……………20 to 30 minutes
400°F / 204°C……………10 to 20 minutes

Recommended Application Pressure
Does not require any pressure to bond. Pressure can be applied in order to create good substrate surface contact. Increased pressures during heating can create “squeeze out” of adhesive from underneath the interface. Testing should be performed to determine the optimal pressure required considering your process and substrates involved.

Standard Film Thicknesses
* 2 MIL (0.002") (0.05mm)
* 4 MIL (0.004") (0.10mm)

Overall Thickness Tolerance: +/- 5% of target

Shear Strength Data
Based upon grit blasted steel bonded to grit blasted steel. Cured at 1 hour at 350°F / 176°C

* 6,266 PSI @ Room Temp
* 510 PSI @ 350°F / 176°C
* 153 PSI @ 400°F / 204°C

Material Delivery Options
* Die cut adhesive pads (individuals)
* Die cut adhesive pads (continuous rolls)
* Rolls or sheets

Color / Storage / Shelf Life
* Translucent (standard)
* Freezer storage required. Refrigerated storage recommended at minimum.
* Shelf Life = 12 months from date of mfg. (pending storage conditions are met)

Other Information
* 100% Solids, No VOC.
* RoHs Compliant Material

Fastelset-X is a solvent based thermally cured epoxy film that is designed to provide permanent and uniform adhesion strength across a desired material interface. The ability to manufacture Fastelset-x as a thermoset adhesive film as well as provide few film thicknesses, rolls, sheet and pre-form die cuts allows us to meet a wide range of requirements within multiple industries. Fastelset-x’s inherent flexibility from manufacturing to installation makes it an ideal solution ranging from low volume (even prototypes) and/or high volume production environments where a permanent long-term bond is required. Fastelset-x is manufactured to superior quality guidelines as set forth by our ISO 9001:2008 Quality Standards and offers a quick turnkey solution from design to production.

Heat Curing Application Methods
Fastelset-X can be heat cured using commercially available heating devices / processes. When cycled past its required thermoset activation temperature, Fastelset-x will begin its quick curing catalyst process as well as its controlled flow filling in any microscopic surface conditions that may exist on your mounting surface as well as adjust for any flatness conditions.

Recommended heating devices include a curing oven, heated press, hydraulic press, heated roller(s), heated flat plate, heat tunnel, heat gun or custom fixture/heating device.

<table>
<thead>
<tr>
<th>Fastelset-X Type</th>
<th>Heating Temp (full cure)</th>
<th>Recommended Tack Temp</th>
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</thead>
<tbody>
<tr>
<td>300150</td>
<td>See schedule above</td>
<td>160°F to 170°F (71°C to 76°C) *</td>
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</tbody>
</table>

* The tacking temperature should be kept below 180°F (82°C) to prevent curing.

Note: make sure all applications surfaces are clean and free of debris before applying adhesive. Plastics and glass should be wiped clean with isopropyl alcohol or other appropriate cleaner. Metals should be degreased using an appropriate solvent or cleaner. When bonding aluminum, an etching process like FPL (ASTM D2651) will significantly increase bond strength.

The data presented in the above table is based upon 2 mil thick Fastelset-X using a curing oven at 60 minutes at 10 psi. Testing within the scope of your application, materials being bonded or sealed and heating device should be performed at multiple cycling temperatures in order to determine your optimal setup and heat cycling procedure.

Fastelset-X Adhesive, once heated and begins it on-slot temperature drop, should be allowed to cool before applying any stress.

The amount of pressure being applied to your substrate during setup should be determined beforehand in order to minimize the effects of the adhesive flowing into unwanted areas outside the desired mounting or sealing interface during heating and high pressures.