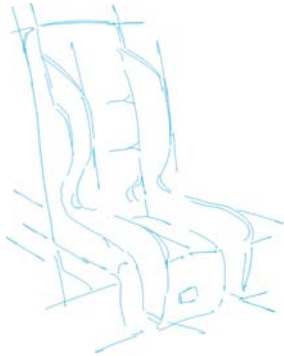


Custom foam application — Child Car Seat



Problem

A manufacturer of child car safety seats faced high labor costs because the seat pad was made of individually cut sections of foam and cloth that were stitched together by hand. First the foam and fabric were each cut and stitched together to form single pieces. Then the pieces were stitched together in a second sewing step, to create the desired shape for the safety seat.



Solution

The obvious answer was to laminate a piece of fabric to the foam and thermoform the composite to create the needed shape. But whenever two new materials are combined, the process for laminating them together must be reinvented to eliminate bubbling, wrinkling, and pulling apart. Both the foam and fabric will also have different amounts of give and stretch. These come into play when shaping the flat pieces into a single contoured piece.



“We know how to laminate fabric to foam,” explained Jim Dovorany, vice president of sales for pinta foamtec. “And we know how to thermoform foam. Our challenge in this case was to combine the two skills to create a complex shape that would move as one.”

pinta foamtec also had to meet customer requirements for comfort, durability and washability, as well as automotive flammability requirements.

pinta foamtec’s engineers went to work. After finding a nylon fabric and urethane foam that each met the usage and flammability requirements, they began extensive testing to get the right process for laminating them together.

Next, the foam and fabric composite had to be molded into the shape of the child safety seat, with all its angles and contours, while maintaining the foam’s cushioning ability. pinta foamtec’s solution was to create a template of the final shape from the injection molded plastic back. Once the engineers had the pattern, they applied thermo forming to shape the foam to the seat.

The prototype met the customer’s goals of comfort, durability and economy. By applying its foam and laminating know-how, pinta foamtec was able to turn what appeared to be flatly impossible into a complex shape.