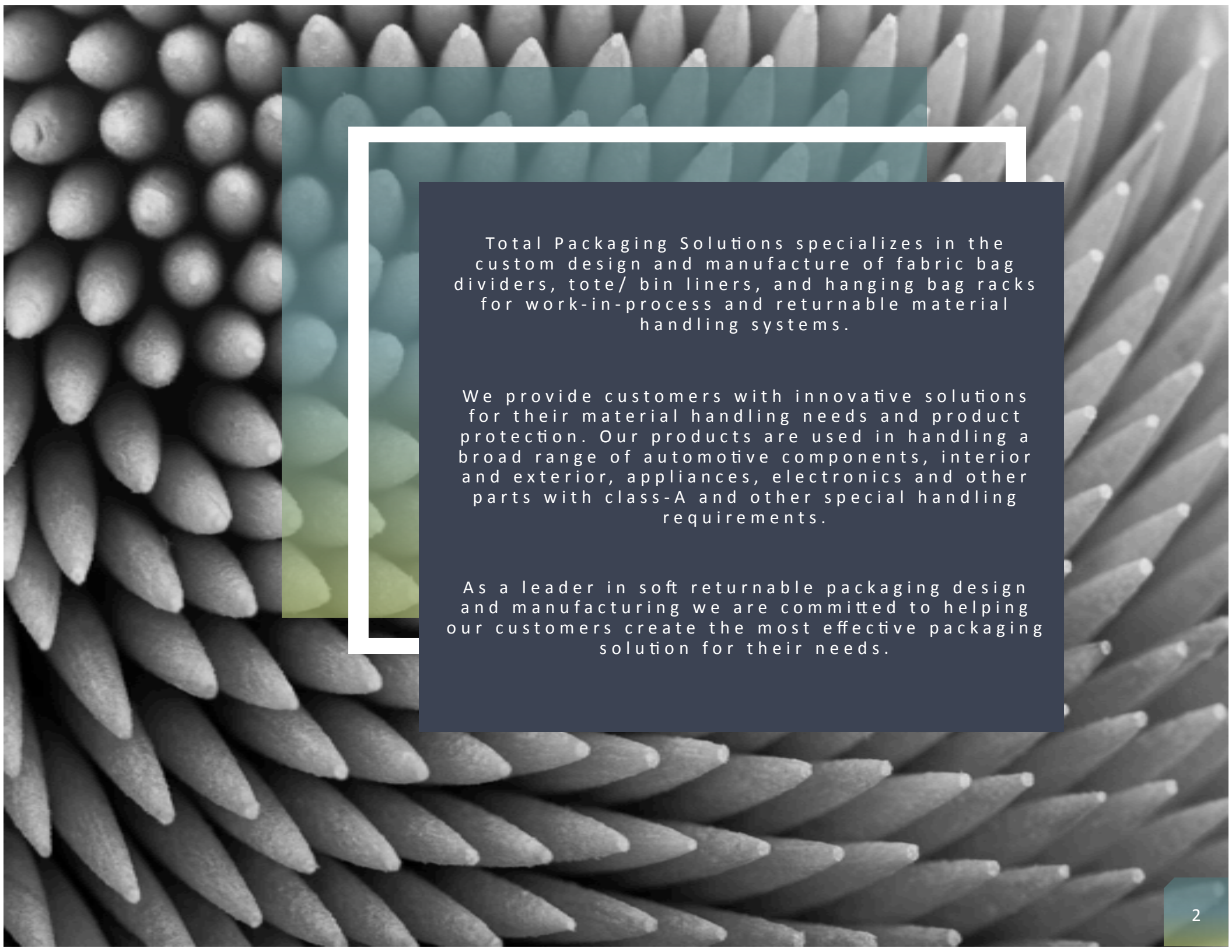




TOTAL
PACKAGING SOLUTIONS

COST-EFFECTIVE PACKAGING SOLUTIONS
DON'T FIT NEATLY IN THE SAME BOX



Total Packaging Solutions specializes in the custom design and manufacture of fabric bag dividers, tote/ bin liners, and hanging bag racks for work-in-process and returnable material handling systems.

We provide customers with innovative solutions for their material handling needs and product protection. Our products are used in handling a broad range of automotive components, interior and exterior, appliances, electronics and other parts with class-A and other special handling requirements.

As a leader in soft returnable packaging design and manufacturing we are committed to helping our customers create the most effective packaging solution for their needs.

The background of the slide is a close-up photograph of a leaf, showing its intricate vein structure. A white, L-shaped frame is overlaid on the left side of the image. The text is centered within this frame. There are also several overlapping rectangular blocks in shades of green and teal, some of which are partially obscured by the white frame.

THE NATURE OF COST OPTIMIZED PACKAGING

From the bees' honeycomb to the tightly packed seeds of a sunflower, nature has always been an efficient packaging engineer. Smart materials, minimal waste, tough structures. In that way, we're a lot like nature. The idea of maximizing design, material selection, manufacturing and warehousing to optimize costs is nothing new to us. It's been our focus since our engineers began designing over 30 years ago.





SEWN FABRIC DUNNAGE

Totes, Bulk containers, and steel racks

Through our manufacturing locations in the USA and Mexico, we can offer full fabric design and sewing capabilities. We'll use soft, pliable materials to custom-fit a solution for your fabric dunnage project. Choosing the best-suited materials and engineering the most appropriate bag design enable:

- Better nesting of parts in each cell
- Greater protection of each component
- Higher density per container
- Greater space and cost efficiencies

Tote/Bulk Container Applications

- Eliminates the need for specialty films, coatings, or protective packaging on parts
- Increased part nesting capability provides increased Density
- Cost effective to manufacture
- Complete returnable system eliminates all expendable materials
- Dunnage will collapse for increased shipping savings with collapsible tote units
- Dunnage can be changed out and adapted to accommodate new programs
- No specialty tooling or die cutting. Saves time and money



Hanging Bag Racks

- Design to build shipping containers
- Can easily support ILVS Systems
- Creation of new containers and use of existing containers
- Combined use of variety of materials to provide flexibility and protection
- Each project specifically custom engineered to provide maximum density, durability, and ergonomic design
- Containers to fit a variety of parts and space configurations

COST SAVINGS

REAL LIFE EXAMPLE OF
HOW WE SAVE OUR
CUSTOMERS MONEY

THE CHALLENGE:

A supplier of high-gloss painted parts was receiving complaints about marks on their parts from shipping. We were asked to redesign their returnable packaging with materials that could protect the part from scratches and allow it to cure safely in the packaging.

THE SOLUTION:

We performed trials with a number of fabric materials typically used for Class A parts. No parts survived intact — all materials caused a slight scratching or smudging. Since no existing material served our needs, so we developed a material of our own.

THE RESULTS:

1. Parts damage reduction: from % 31 to 0%
2. New material cost reduction: 25%
3. Lifetime Packaging Savings: \$1.1 million USD



COMMON PARTS AND FABRICS

VEHICLE INTERIOR

- Door Panel
- Door Handle
- Door Inner Module
- Door Bolster
- Door Substrate
- Door Armrest
- Overhead Console
- Visor
- Grab Handles
- Headliners
- Hard trim/Garnish
- A, B, and C-pillar upper & lower
- Scuff plates

SUV/Van

- Lift gate package – lower & upper
- Body Wire Harness
- Hand Parking Brake
- Foot Parking Brake
- Foot Pedals
- Air Bag Modules
- Steering wheel
- Side – door

Passenger – IP

- Seat Belts
- Seat Belt Retractors
- Shelf Panel
- Trunk/floor system components
- Instrument Panel
- IP Substrate
- Glove box Assembly
- IP Cluster
- Center Stack

Components

- Knee Bolster
- Front Seat
- Armrest
- Plastic trim pieces
- Headrests
- Floor Console
- Rear View Mirror
- Interior window halo

VEHICLE EXTERIOR

- Side View Mirror
- Front Fascia
- Rear Fascia
- Body Side moldings
- Headlight assembly
- Lamp lens
- Lamp housing
- Tail lamp assembly
- Lamp lens
- Lamp housing
- Wheel cover
- License plate garnish assembly
- Rear Spoiler
- A/B/C pillar plastic trim
- Door Handles
- Exterior Halo
- Luggage Rack
- Front Grille
- Cowl Grille
- Rocker Panels
- Front and Rear Wheel Flares

VEHICLE MISC.

- Engine Harness
- Miscellaneous Wire Harnesses
- Painted steel pieces
- Plastic Engine Cover
- Under-hood plastic components
- Transmission cooler
- Electronic Control Module
- Air Inlet Module

Common Materials Used

- Milky Clear Vinyl - 13oz., 18oz.
- Double Polish Clear Vinyl - 13oz., 18oz., 30oz.
- Auto Gray PVC - 11oz., 13oz.
- 1 Side Brushed Polyester & Milky Clear - 10oz.
- 1 Side Brushed Polyester & Auto Gray - 11oz.
- 2 Side Custom Brushed Polyester - 14oz.
- Tyvek & Milky Clear - 12oz.
- Tyvek - 5oz.
- Gray & White PVC - 18oz.
- Spunbond - 2oz., 5oz.

From initial concept to final conveyance, Total Packaging Solutions offers the most comprehensive design and manufacturing in soft packaging. As our current clients know: Relying on one, trusted source for your complete packaging needs maximizes efficiency and cost effectiveness.

Design Concepts

With just a sample part or CAD Data, a description of system requirements, and the number of parts in the pipeline, we can provide you with a quote.

Rapid Prototyping

With an approved concept, prototype samples usually be delivered in five days or less.

Quality Manufacturing

We manufacture the products that we design! No middle-men. Bottom line: you are assured the highest quality product every time.

Program Management

We provide turn-key solutions, including comprehensive design, prototyping, manufacturing and delivery for all segments of your supply chain.



CONTACT US

Total Packaging Solutions
755 W. Big Beaver Rd., Suite 2020
Troy, MI 48084 USA

service@totalpkgsolutions.com
(248) 519-2376