Automotive Dashboard Overlay

Dead-Front Instrument Cluster Panels and Vehicle HMI Graphic Overlays

Baoshengda manufactures custom automotive dashboard overlays, instrument cluster panels and dead-front HMI overlays for vehicle display and control interfaces.

- Optical-grade PC / PMMA material options
- Dead-front translucent window and hidden icon effects
- AG / AF / anti-scratch surface treatment options
- Multi-color screen printing and 2D / 2.5D / 3D forming support
- 3M automotive-grade adhesive and bonding structure options
- IATF 16949, ISO 9001 and ISO 14001 manufacturing support

Typical project scope

Passenger vehicle instrument clusters, EV digital cockpit panels, automotive control panels, motorcycle dashboards, outdoor vehicle displays and industrial vehicle HMI interfaces.

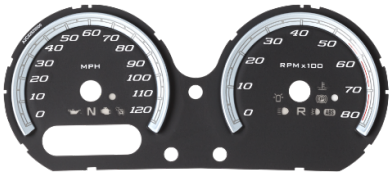
Manufacturer	Shenzhen Baoshengda Technology Co., Ltd.
Website	https://www.baoshengda-tech.com/
Main CTA	Send drawing, artwork, sample photos or application requirements for quotation.

1. Product Overview

An automotive dashboard overlay is a functional graphic film or panel used on instrument clusters, vehicle display windows, dashboard interfaces and control panels. It provides the visual surface, display window, protective layer and bonding interface between the vehicle electronics and the driver.

For modern vehicle HMI designs, the overlay must support optical clarity, color consistency, surface durability, UV resistance, bonding reliability and long-term readability in different driving environments.

Core value	High-contrast dashboard visual interface with durable surface protection and customized display window effects.
Design focus	Optical material, dead-front effect, printing accuracy, surface treatment, adhesive bonding and forming feasibility.
B2B use	Designed for OEM / ODM vehicle electronics, instrument cluster modules, dashboard panels and HMI assemblies.



Main Advantages

- Dead-front effect: display windows or icons can remain hidden when the backlight is off and become visible when illuminated.
- Automotive visual durability: AG, AF, hard coating and UV-resistant options can be selected based on project requirements.
- High-precision printing: supports icons, scale marks, warning symbols, translucent windows and decorative graphics.
- Forming support: 2D, 2.5D and 3D structures can be reviewed according to the drawing and material selection.

2. Structure and Layer Breakdown

Layer / Function	Purpose
Anti-glare / anti-scratch surface layer	Reduces reflection, improves readability and protects the panel from fingerprints, scratches and daily handling.
Optical-grade PC / PMMA substrate	Provides the transparent or semi-transparent base for the dashboard window and printed graphic structure.
Multi-color screen printing layer	Creates icons, scale marks, warning symbols, decorative graphics and high-contrast visual effects.
Dead-front translucent ink layer	Allows hidden display areas to appear only when illuminated by backlight or display modules.
Formed structure	Supports flat, curved or 3D dashboard housing fit based on material and tooling feasibility.
Rear adhesive / bonding layer	3M automotive-grade adhesive, VHB or customized adhesive system for assembly and long-term bonding.

Engineering note

Final layer design depends on the drawing, optical requirements, display window structure, backlight matching, forming depth, adhesive surface and reliability requirements.

3. Technical Specification Guide

Item	Options / Description
Product type	Automotive dashboard overlay, instrument cluster overlay, automotive graphic overlay, vehicle HMI panel
Substrate material	Optical-grade PC, PMMA or customized materials based on project requirements
Thickness	0.125mm - 0.5mm or customized thickness based on project requirements
Surface treatment	Anti-glare, anti-fingerprint, anti-scratch, hard coating, matte or glossy finish
Printing process	Multi-color screen printing, reverse printing, translucent window printing, dead-front printing
Visual effect	Dead-front effect, hidden display window, high-contrast icons, transparent or semi-transparent display areas
Forming support	2D, 2.5D or 3D forming available based on part structure
Adhesive	3M automotive-grade adhesive, VHB adhesive or customized bonding solution
Environmental resistance	UV, temperature, humidity, abrasion and chemical resistance available based on project requirements
Applications	Instrument cluster, digital dashboard, vehicle display window, automotive control panel, EV HMI interface
Certification support	IATF 16949, ISO 9001, ISO 14001; RoHS / SGS material support where applicable

Note: Final specifications depend on customer drawings, optical requirements, vehicle environment, bonding structure and validation standards.

4. Customization Options

Visual and Graphic
- Custom icons, scale marks and warning symbols
- Transparent or semi-transparent windows
- Dead-front hidden window effect
- High-contrast day and night visual design
- Custom color matching and print alignment

Material and Surface
- PC, PMMA or other optical materials
- Anti-glare surface treatment
- Anti-fingerprint coating
- Anti-scratch hard coating
- UV-resistant ink and material options

Structure and Assembly
- Flat, curved or formed overlay structure
- 2D / 2.5D / 3D shape support
- Customized adhesive and bonding structure
- Housing fit and assembly tolerance review
- Backlight and display module matching

Automotive Environment Support

- UV exposure evaluation based on project requirements
- High and low temperature evaluation based on project requirements
- Humidity and thermal cycling support based on project requirements
- Adhesion and bonding reliability review
- Optical clarity and color consistency inspection

Development advice

Confirm material, printing, window alignment, forming depth and adhesive structure before tooling. Early design review helps reduce sampling cycles and mass-production risk.

5. Application Scenarios

Passenger Vehicle Instrument Clusters	Instrument cluster windows, speedometer areas, warning icons and decorative dashboard surfaces.
New Energy Vehicle HMI	EV dashboard displays, digital cockpit panels, hidden display windows and modern vehicle control interfaces.
Automotive Interior Control Panels	Climate control panels, center console interfaces, seat control panels and vehicle control modules.
Motorcycle and Outdoor Vehicle Displays	Motorcycle dashboards, e-bike displays, ATV panels and outdoor vehicle instruments requiring UV and abrasion resistance.
Industrial and Special Vehicle Interfaces	Construction machinery, agricultural equipment, industrial vehicles and control panels operating in harsh environments.

Related Baoshengda Solutions

- Custom membrane switches
- FSR pressure sensors
- Graphic overlays and film panels
- Motorcycle dashboard overlays
- Flexible heating films for smart mobility

6. Quality and Testing Support

Quality control can be planned according to the product structure, application environment and customer validation requirements. For automotive HMI projects, it is important to define optical, environmental, bonding and assembly requirements at the early design stage.

- Appearance inspection	- Dimensional inspection
- Color consistency inspection	- Transparency and light transmission inspection
- Surface scratch and coating inspection	- Printing alignment inspection
- Adhesion and bonding review	- High and low temperature evaluation where applicable
- Constant temperature and humidity testing where applicable	- Salt spray testing where applicable
- UV and weather resistance evaluation where applicable	- RoHS / SGS material compliance support where applicable

Certification support

Baoshengda manufacturing support includes IATF 16949, ISO 9001 and ISO 14001 quality system foundations, with RoHS / SGS material support where applicable.

7. Information Needed for Quotation

To help us provide a faster and more accurate quotation, please send the following information if available:

- 2D drawing or 3D structure file
- Artwork file, icons, scale marks or display window layout
- Material requirement, such as PC, PMMA or other optical substrate
- Thickness and surface treatment requirements
- Dead-front or translucent window requirement
- Backlight or display module matching requirement
- 2D / 2.5D / 3D forming requirement
- Adhesive and bonding surface information
- Application environment and reliability requirements
- Estimated annual quantity
- Sample, reference part or product photos

Request a quote

Send your drawing, artwork, sample photos or application requirements. Baoshengda can help review material, printing, forming and bonding feasibility before prototype development.

Website	https://www.baoshengda-tech.com/
Quote page	https://www.baoshengda-tech.com/request-quote/
Recommended file name	automotive-dashboard-overlay-baoshengda.pdf