

# Design Checklist

To better engineer the cost of and produce a part, DuraTech should have specific information from our customers up-front. This design checklist can shorten lead times, reduce costs, and ensure that quality is designed into the part. It will allow our staff to verify, or suggest, materials and adhesives that are best suited for each individual application.

**The checklist is designed to work in tandem with a blueprint or sketch indicating size and colors.**

**PART NUMBER** (Include any and all P/N's covered by this checklist.): \_\_\_\_\_

If more than one, would you like the parts to be quoted as a set?  Y  N (Oftentimes, parts that are used on the same piece of equipment can be the same material and therefore can be ran together as a set. Please call for more information on sets.)

**QUANTITY** (Please be as specific as possible. Major factor in unit price and tooling costs.)

Estimated Annual Usage? \_\_\_\_\_ Project life? \_\_\_\_\_

Prototype Q? \_\_\_\_\_ Use production tooling for prototypes?  Y  N

Pre-production Q? \_\_\_\_\_ Projected Order Quantity? \_\_\_\_\_

Would you like us to produce a pre-determined blanket amount, hold product, and ship on demand?  Y  N

If yes, identify blanket time frame:  six months  one year  other \_\_\_\_\_; and number of releases: \_\_\_\_\_  
(Blanket orders are a great way to save money and inventory costs. Get the economies created by a larger order quantity, product shipped on a Just-In-Time schedule, and billing only as each release is shipped.)

**ENVIRONMENT** (Please be as specific as possible.)

Is the part to be used outdoors?  Y  N If yes, please explain the exposure (vertical, horizontal, enclosed, etc.): \_\_\_\_\_

Is the part exposed to any chemicals?  Y  N If yes, please list any specific chemicals: \_\_\_\_\_

Maximum temperature? \_\_\_\_\_ Minimum temperature? \_\_\_\_\_ Application temperature? \_\_\_\_\_

Surface applied to? \_\_\_\_\_ Textured?  Y  N Curved?  Y  N If yes, radius? \_\_\_\_\_

(Indicate the specific surface, including the color. Different adhesives work better on different surfaces. For example, a powder coat paint surface may require a different adhesive than one painted with enamel. An ABS plastic may require a different adhesive than a polyethylene plastic. Also, dark surfaces may require special color matching considerations. Please send us the surface whenever possible.)

**CONSTRUCTION** (Based on the information given above, DT may recommend an alternate construction. However, the information you provide below will give us valuable insight to the requirements of the project. If this information is included on your blueprint or sketch the following section may be omitted.)

Material preference: \_\_\_\_\_ Thickness: \_\_\_\_\_

Adhesive:  Y  N If yes, please specify any preferred type: \_\_\_\_\_ Thickness: \_\_\_\_\_

Selective (No adhesive in certain areas, e.g. windows, keypads. DT standard procedure is to keep .060" adhesive free on all sides of a window/keypad. Our standard tolerance on the placement is  $\pm .020$ ". Please note deviations to these practices on your blueprint.)

**GRAPHICS** (Any artwork supplied should be computer generated. Can be e-mailed to [artwork@duratech.com](mailto:artwork@duratech.com).)

Computer art information:  None  E-Mail \_\_\_\_\_ Other \_\_\_\_\_



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## GRAPHICS (cont.)

(Please include PMS #'s or, better yet, include samples or chips to match.)

\_\_\_ Number of standard colors (Standard colors can save costs. Standard color chips are available upon request.)

\_\_\_ Texture or antiglare finish (Please include sample or indicate gloss level.) \_\_\_\_\_

\_\_\_ Selective (No texture in certain areas, e.g. LED windows, display windows, etc. DT standard procedure is to bleed the texture into the windows by .010". Please note deviations to this practice on your blueprint.)

**TOLERANCES** (Generally, the tighter the tolerance, the higher the initial tooling costs, and larger fallout percentages. Care should be taken to avoid over spec'ing your part. Thicker materials may require larger (laser) diecutting tolerances, or the use of a hard tool.)

Diecutting: \_\_\_ +/- .010" I-Cut, generally used on short runs  
\_\_\_ +/- .005" Hard tool, generally used for extremely tight tolerance or long running projects.  
\_\_\_ +/- .010" Laser burned steel rule die, generally used for parts that fit a recessed area.  
\_\_\_ +/- .015" Jig cut steel rule die, generally used for less critical applications.

Graphics to diecutting: \_\_\_ +/- .015" Industry standard

Printed graphic tolerances (as stated): +/- .010" - Printed graphics to graphics created by one color  
+/- .020" - Printed graphics to graphics created by more than one color

## AGENCY REGULATIONS/REQUIRED APPROVALS:

### FEATURES

(Leaves "void" message if removed.)

\_\_\_ Destructible (Designed to fracture easily to prevent one piece removal.)

\_\_\_ Computer imprintable/ink receptive

\_\_\_ Removable Adhesive

\_\_\_ Repositionable Adhesive

\_\_\_ Serializing (1/16" or 1/8" high - please indicate size and color.) \_\_\_\_\_

\_\_\_ Embossing - Number of expected actuations: \_\_\_\_\_ Height (Recommended 1 1/2 times material thickness for polycarbonate, 1 time for polyester): \_\_\_\_\_

(Parts will be shrink wrapped in packages of 100 - 200 unless otherwise specified.)

Special packaging requirements? \_\_\_\_\_

Is the part backlit? \_\_\_Y \_\_\_N If yes, please describe: \_\_\_LCD \_\_\_LED \_\_\_Other \_\_\_\_\_

Is the part applied to a subpanel? \_\_\_Y \_\_\_N Dura-Tech supplied? \_\_\_Y \_\_\_N (Include drawing.)

Applied to a membrane switch? \_\_\_Y \_\_\_N DT supplied? \_\_\_Y \_\_\_N (Include drawing/complete checklist below.)

**(Please submit housings - including working display units and lighting sources - as early in the design stage as possible.)**

## MEMBRANE SWITCH INFORMATION

### ELECTRICAL

Number of switches: \_\_\_\_\_ Operating Voltage: \_\_\_\_\_ Operating Current: \_\_\_\_\_

Maximum contact resistance: \_\_\_\_\_ Minimum open circuit resistance: \_\_\_\_\_

Switch circuitry: \_\_\_XY matrix \_\_\_One side common \_\_\_Other (Please describe.) \_\_\_\_\_

ESD shielding required? \_\_\_Yes \_\_\_No Immunity requirement in volts: \_\_\_\_\_

RFI/EMI shielding required? \_\_\_Yes \_\_\_No

Number of LED's? \_\_\_\_\_ Type? \_\_\_\_\_

Type of LCD display: \_\_\_\_\_ Customer supplied? \_\_\_Yes \_\_\_No

Type of connector: \_\_\_\_\_ Customer supplied? \_\_\_Yes \_\_\_No

Other discrete components: \_\_\_\_\_

Total thickness with overlay: \_\_\_\_\_ Tail length and location: \_\_\_\_\_

Special operating force requirements: \_\_\_\_\_ oz.

Tactile feedback required? \_\_\_Yes \_\_\_No If yes: \_\_\_Stainless steel \_\_\_Polyester

Number of expected actuations: \_\_\_\_\_

Mounting method: \_\_\_Adhesive (Please complete "Surface applied to?" section on overlay Design Checklist.)

\_\_\_Studs \_\_\_Holes \_\_\_Other (Please describe.) \_\_\_\_\_

Operating voltage: \_\_\_\_\_ maximum \_\_\_\_\_ minimum

Storage temperature: \_\_\_\_\_ maximum \_\_\_\_\_ minimum

Maximum humidity conditions: \_\_\_\_\_

Special altitude requirements: \_\_\_\_\_

Other: \_\_\_\_\_