Hy.tech Quick Reference Sheet

Hydro Form Service

STANDARD EMBOSS DESCRIPTION: Flat top single level forms under .040 high where all forming is the same shape.

CUSTOM EMBOSS DESCRIPTION: Forming which requires multi-level, multi-feature, curved and/or rounded (hemispherical) forming. Forming of two different features requiring the same height is still classified as custom because different part geometries require different tool depths to achieve the same finished height.

L2 EMBOSS DESCRIPTION: Tactile domes formed on an overlay using the hydro forming process. No heat is used in forming these domes.

Please contact your regional Hytech service center for current per sheet pricing and set up costs.

Lead-Time:

Standard Emboss: 24 hours is the lead-time for standard embossing up to 500 sheets. Please note, that this lead-time includes tool fabrication.

Custom Emboss & L2 : 72 hour is the lead-time for forming up to 500 sheets. Please note, lead-time does NOT include tool fabrication. Daily throughput for high volume programs will be determined by customer need.

Key Information Required:

- ❑ Minimum of 2 set up sheets
- ❑ Complete tool information if new tool
- ❑ Registration of printed sheet to tooling artwork verified
- ❑ Completed packing list and purchase order with shipment
- ❑ Printed image to edge of sheet same as previous runs
- ❑ Sheet size within Hy.tech specifications (see back)
- ❑ Completed Hy.tech order form

Thermoforming Services

POLYDOME® DESCRIPTION: Hemispherical circular shapes formed in a circuit layer for the purpose of providing tactile response. L1 domes are formed on non-printed stock or with shorting pads only. Circuits that have any other printing are classified as L3.

AccuForm® DESCRIPTION: Thermo forming process used for deep draw close tolerance graphic-to-form registration. This process is typically used for in-mold decoration applications where graphic registration to form geometry is critical. In most cases, distortion printing is not required to achieve registration requirements.

Please contact your regional Hytech service center for current per sheet pricing and set up costs.

Lead-Time:

72 hours is the lead-time for forming up to 500 sheets on both the Polydome® and AccuForm® processes. Please note, lead-time is based on existing tooling. Daily throughput for high volume programs will be determined by customer need.

Key Information Required:

- ❑ Minimum of 2 set up sheets
- ❑ Complete tool information if new tool
- ❑ Registration of printed sheet to tool print & artwork verified
- ❑ Completed packing list and purchase order with shipment
- ❑ Printed image to edge of sheet same as previous runs
- ❑ Sheet size within Hy.tech specifications (see back)
- ❑ Completed Hy.tech order form

Other Services

LASER CUTTING: This service was added primarily to provide low cost prototype solutions. In addition to prototyping, this service has also been used for production runs of thick multi-layer constructions and acrylic applications.

DIE CUTTING: Hy.tech has added limited die cutting capability. Die cutting is done on a 25 ton punch press. Match metal and steel rule die cutting are possible. See backside for steel rule die cut size. Cut size for match metal tooling will be dependent on design.

Please contact your regional Hytech service center for current trim service pricing.

Lead-Time:

24 hours is the lead-time for 10 part prototype orders and Spartanic orders under 500 punches. Production lead-time for high volume laser cutting and die cutting are determined by customer need and press availability.

Key Information Required:

- ❑ Minimum of 2 set up sheets
- ❑ Complete job information
- ❑ Print showing graphic to cut registration
- ❑ Completed packing list and purchase order with shipment
- ❑ DXF or DWG CAD file if available
- ❑ Orientation of image to sheet clearly identified
- ❑ Sheet size within Hy.tech specifications (see back)
- ❑ Completed Hy.tech order form

Tooling

DESCRIPTION: Hy.tech offers state of the art in-house photo etched, 2-dimensional and 3-dimensional CNC milled tooling options. These options in combination with Hy.tech's 20 years form tool fabrication experience equate to faster product development, fewer iteration and less overall project cost. In addition to the custom tool option, many standardized geometries are available with known diameter, height and lifecycle expectations.

Please contact your regional Hytech service center for current tool pricing

Lead-Time:

24 Hrs	Standard Emboss
48-72 Hrs	Dome tooling
Project specific	Custom & AccuForm®

Please note, tooling may be ordered in advance of initial shipment of sheets. See custom key information below to insure printed parts will match tool ordered.

Key Information Required:

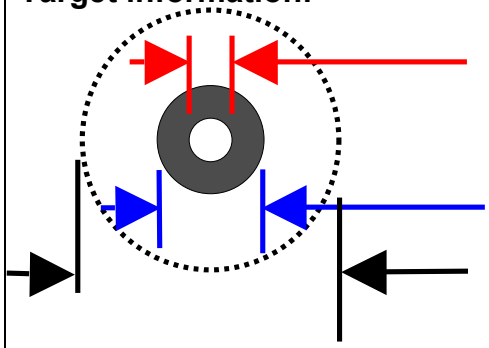
Standard emboss tool

- ❑ Identify material type and thickness; including liners and laminates
- ❑ Form height for one feature
- ❑ Targets per Hy.tech specification (see back)
- ❑ Film positive emulsion up right reading for emboss, for deboss emulsion down

Dome and Custom tools (in addition to above)

- ❑ Legible drawing or CAD database DXF for DWG preferred
- ❑ Cross section detail of all form features
- ❑ All features dimensioned including Hy.tech target locations

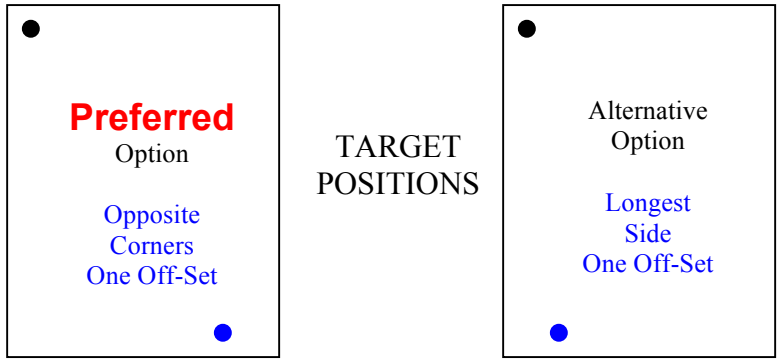
Target information:



Target Center Diameter: .64 mm to 1 mm

Target Outside Diameter: 3.2 to 3.8mm

Target Background: Minimum 9.5mm diameter of uninterrupted background field



Sheet sizes: *all dimension in mm*

All dimensions in inches. For programs with a sheet size that does not fit below please contact Hy.tech customer service or sales; larger sizes may be available. Sheet sizes listed below are maximums, sheets smaller than sheet sizes listed are acceptable.

Hydro Form (standard sizes)

318 x 584 457 x 457 229 x 648
394 x 508 330 x 559 559 x 508

Laser Prototype & Production

457 x 812 (sheet size)
432 x 787 (cut surface)

AccuForm®

457 x 24
356 x 813

Polydome®

356 x 457

Minimum artwork and rim emboss line widths:

To achieve the most flexibility in design with rim embossing the formulas listed below should be used to calculate the minimum line width. For artwork that does not fit the rules below please contact Hy.tech. The line width rule also applies to spacing between forms and lettering on formed logos where overall form height is less than .030".

PE (polyester)

8 x material thickness
(material + ink + liners)

PC (polycarbonate)

4 x material thickness
(material + ink + liners)

Minimum artwork for small diameters:

10 x material thickness for **PE**
(material + ink + liners)

6 x material thickness for **PC**
(material + ink + liners)

Shipping checklist:

****NOTICE** The number one cause for service delay is incomplete or missing information.**

- ❑ Copy of your PURCHASE ORDER for current project.
- ❑ ALL "window" type projects must be protected individually with slip sheet, protective liner or window mask.
- ❑ All project materials marked with customer name, customer assigned part number or assigned tool number.
- ❑ Always package the SET-UP SHEETS separately from the production sheet stacks.
- ❑ Return address for finished goods and requested transport method.
- ❑ ALWAYS physically separate (wrap/package) production sheets from packaging medium (i.e. foam peanuts, etc.).

Customer Service:

Scheduling, job status, expedite requests, place on hold, change ship method, etc.

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customerservice@hytechusa.com
+1-602-944-1526 ext 244

Europe: Rose Riley
Rose.riley@hytecheuro.co.uk
+44 (0) 1635 552 818

Sales:

Customer service back up, program quotes, special lead-times, interface for technical communications and on-site customer training.

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Europe: Peter Brown
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Quality:

Cause and corrective action, capabilities studies, statistical analysis, procedure changes.

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