

CCSi Ultra-Life Specimen Molds: ASTM D623



D623-A Ultra-Life Trident Mold

CCSi *Ultra-Life* molds are designed, engineered, and manufactured to produce high quality specimens, over an extended service life!

CCSi manufactures these specimen molds for the comparison of the fatigue characteristics and rate of heat generation of rubber vulcanizates when subjected to dynamic compressive strains, as indicated in [ASTM D623](#) 'Standard Test Methods for Rubber Property - Heat Generation and Flexing Fatigue In Compression'.

ASTM D623 employs two distinct instruments, the Goodrich Flexometer in *Test Method A* and the Firestone Flexometer in *Test Method B*.

The test specimens are also dissimilar in configuration. The *Method A* test specimen is often obtained by die cutting, however, it is permissible, and often preferable, to mold the specimens, which are of a cylindrical geometry. Conversely, it is necessary to mold the *Method B* specimens, which are shaped as the frustum of a rectangular pyramid, as die cutting is not practical.

CCSi Ultra-Life Specimen Molds: Quality Manufacturing

CCSi *Ultra-Life* molds are manufactured from homogenous, solid, high carbon content A2 mold steel. Each undergoes precision grinding and CNC (Computer Numerical Control) machining to exacting requirements. The mold cavities are expertly honed and hand polished, after which the mold is industrial chrome plated.

Precision grinding ensures a parallel surface profile of the platens and CNC machining provides ultra-close dimensional tolerances, while the honing and polishing processes guarantee smooth, true specimen cavities. The durable, hard chrome finish resists the corrosive and adhesive effects of most compounds, greatly improving overall durability and ease of maintenance.



D623-B Ultra-Life Mold

The CCSi *Ultra-Life* mold platens are thicker than standard molds, providing superior heat and pressure distribution, as well as extending the mold's useful life by resisting distortion. This also allows the overflow recesses to be deeper, reducing problems associated overfill. The platens are positively positioned with precision guide pins and receivers ... assuring precise closure!

CCSi Ultra-Life Specimen Molds: Innovative Design

CCSi *Ultra-Life* molds feature a unique cam-action hinge design which improves the critical distribution of pressure. Typical 'fixed-hinge' designs cause material to flow, outwardly, from this constraining point. This uneven application of pressure may cause excessive overfill, or cavity voids. The cam-action hinge design has all of the advantages of 'stacked plate' molds, combined with the convenience of 'fixed-hinge' designs! ^{NOTE-1}

The handles are manufactured from 304 stainless steel (a chromium - nickel austenitic alloy) and contain integral support pins. This allows the handles to rotate, which facilitates opening the mold. The handles are ergonomically positioned to ease placement and removal from the heated laboratory press. ^{NOTE-1}

Large triangular pry slots are located at the corners, opposite the cam-action hinges. These further facilitate mold opening and reduce the occurrence of cavity damage from improperly positioned tools.

CCSi *Ultra-Life* Specimen Molds: Unique *Trident* Configuration



D623-A *Ultra-Life* Trident Mold

The CCSi *Ultra-Life* *Trident* is a unique 3 platen mold designed specifically for specimens which are typically difficult to extract.

The *Trident* features a tertiary, centrally positioned, side-mounted platen, which precisely mold-forms the specimen between two 90° opposed plates. It opens to expose both horizontal specimen surfaces, greatly easing specimen removal.

Thicker specimens, which are prepared in dual platen laboratory molds, are often subject to damage caused by the difficulty of extraction. Specimen damage may go unnoticed, adversely affecting the repeatability and reproducibility of test determinations.

The CCSi *Ultra-Life* *Trident* configuration virtually eliminates the potential for specimen deformation caused by extraction, reducing the need for repeat testing and improving test results!

CCSi *Ultra-Life* Specimen Molds: Features

The CCSi ASTM D623 Specimen Molds Feature:

- Exclusive *Ultra-Life* engineering;
- Designed with advanced 3D solid modeling;
- Manufactured using computerized systems and techniques;
- CNC (Computer Numerical Control) 4 axis machining;
- Precision ground;
- Expertly honed;
- Finely polished;
- High carbon content A2 mold steel;
- Thicker plates resist warping, distribute heat and pressure evenly;
- Cam action hinges prevent uneven closure;
- Industrial chrome plate finish;
- 304 stainless steel rotating handles ease opening, closing and handling;
- Deep overflow recesses (flash pockets) reduce overflow problems;
- Precision locator pins & receivers assure positive alignment;
- High strength fasteners resist the effects of strain and stress;
- Temperature probe orifices may be added for profiling;
- Optional finishes are available for highly corrosive compounds.

Available in:

- ASTM D623 *Ultra-Life* Method A;
- ASTM D623 *Ultra-Life* Method B;
- ASTM D623 *Ultra-Life* *Trident* Method A.

NOTE-1 handles and hinges are not offered in all D623 designs.

CCSi *Ultra-Life* ASTM D623 Specimen Molds: Specifications & Pricing

Part Number	Mold Configuration	Specimen Size NOTE-2
CCS-MD623-A-82	Method A - 08 Cavity - 2 Plate	17.8 ± 0.1 Ø x 25.0 ± 0.15 mm ^A (0.7 ± 0.004 Ø x 0.98 ± 0.006 inch)
CCS-MD623-A-83	Method A - 08 Cavity - <i>Trident</i>	18.0 ± 0.05 Ø x 25.78 ± 0.05 mm ^B (0.709 ± 0.002 Ø x 1.015 ± 0.002 inch)
CCS-MD623-B-12	Method B - 01 Cavity - 2 Plate	54 x 28.6 - 50.8 x 25.4 - 38.1 mm (2.125 x 1.125 - 2.0 x 1.0 - 1.5 inch)
Please Request a Quotation for current pricing and delivery.		

NOTE-2 Please refer to Section 9.1 and Note 4 in ASTM D623 regarding the dimensions of Method A specimens.

Where:

^A is the suggested specimen dimensions when die cut, and

^B is the recommended mold cavity dimensions, which allows for *typical* shrinkage.

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Corporate Consulting, Service & Instruments, Incorporated
221 Beaver Street • Akron, Ohio 44304 USA

Telephone: 800.742.8535 / 330.376.3600 • Facsimile: 800.229.9329 / 330.376.8500

• WWW.CCSI-INC.COM • WWW.ORECOZONE.NET •