

D945 Part A (solid rubber) Die

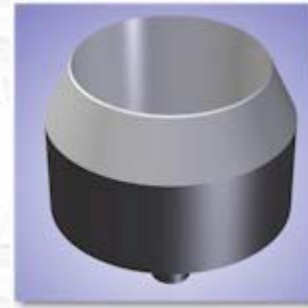
CCSi manufactures these high quality *Ultra-Life* Specimen Cutting Dies for measuring the mechanical properties of rubber vulcanizates in a small range of deformation employing the Yertzley Mechanical Oscillograph, as described in [ASTM D945](#) 'Standard Test Methods for Rubber Properties in Compression or Shear (Mechanical Oscillograph)'.

These mechanical properties include resilience, dynamic modulus, static modulus, kinetic energy, creep or hysteresis, and compression set by a specified force. Part A of the method describes *Measurements in Compression* and Part B addresses *Measurements in Shear*.

Part A, *Measurements in Compression*, separately addresses two materials, *solid rubber* and *cellular* materials. Each of which require differently configured specimens and preparation procedures.

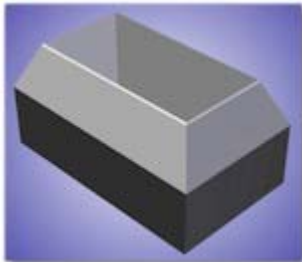
Part A, *solid rubber specimens*, is further divided by units of measure employed in the performance of the test, those being SI and inch-pound units. The dimensions of the SI specimen are 19.5 ± 0.13 mm \varnothing , 12.5 ± 0.25 mm thick, with a nominal area of 300 mm² and a 'shape factor' of 0.390. The dimensions of the inch-pound specimens are 0.75 ± 0.005 inch \varnothing , 0.5 ± 0.010 inch thick, with a nominal area of 0.442 in² and a 'shape factor' of 0.375.

Part A, *cellular specimens*, requires that the cutting die, 43.70 ± 0.01 mm (1.720 ± 0.001 inch) ID having an area of 15.0 cm² (2.323 in²), be rotated during the process of obtaining the specimen from the test piece. This CCSi specimen cutting die is equipped with a special integral 0.375 inch diameter shaft, facilitating its mounting in a drill press, or similar device.



D945 Part A (cellular) Die

Part A test specimens may be obtained from specially prepared molded test pieces or from finished articles. When obtained from articles, the specimens must be plied to the specified thickness, or when thicker than required, finished by buffing or grinding.



D945 Part B Specimen Die

CCSi features the [Emerson Type Rubber Buffer](#) and the [Hung Ta™ Par-Marton Type Specimen Adjuster](#), both of which are suitable for this application and comply with the requirements of [ASTM D3183](#) 'Standard Practice for Rubber – Preparation of Pieces for Test Purposes from Products'.

Part B, *Measurements in Shear*, requires a rectangularly configured test specimen. These are also divided by units of measure employed in the performance of the test, that also being SI and inch-pound units.

The dimensions of the SI specimen are 12.7 ± 0.02 mm in width, 23.62 ± 0.02 mm in length, and 12.5 ± 0.25 mm in thickness, having a nominal area of 600 mm². The dimensions of the inch-pound specimens are 0.50 ± 0.001 inch in width, 0.884 ± 0.010 inch length, 0.50 ± 0.001 inch in thickness, with a nominal area of 0.884 in².

CCSi *Ultra-Life* Specimen Dies: Quality Manufacturing

CCSi *Ultra-Life* specimen cutting dies are manufactured from homogenous, solid, high carbon content A2 tool steel. Each undergoes multi-axis precision grinding and conventional, plunge, or wire EDM (Electrical Discharge Machining) processes ... producing a world-class, close tolerance die.

Precision grinding and EDM processes ensure true parallelism and multi-plane dimensional accuracy. The quality of materials, design, and engineering serve to provide the highest specimen quality possible, over an extended service life.

Where highly technical manufacturing techniques and processes end ... old-world craftsmanship begins!

CCSi *Ultra-Life* specimen cutting dies are individually serialized, hand-honed, and mirror polished. A protective coating of industrial enamel is applied to the non-cutting surfaces before undergoing a rigorous final inspection.

Each *Ultra-Life* specimen cutting die includes a detailed final report and certification to the applicable standard, traceable to NIST, and compliant with ISO 9001:2000 and ISO/IEC 17025. The specimen dies are placed in a plastic, blow-molded, 'clam shell' style case with a foam lining to protect the die during transport and storage.

CCSi *Ultra-Life* Specimen Dies: Features

The CCSi Specimen Cutting Dies Feature:

- Exclusive *Ultra-Life* cutting edge technology;
- Designed with advanced 3D solid modeling;
- High carbon content A2 tool steel;
- Manufactured using computerized systems and techniques;
- EDM (Electrical Discharge Machining);
- CNC (Computer Numerical Control) 4 axis machining;
- Precision ground;
- Expertly honed;
- Finely polished;
- Protective industrial enamel coating;
- Plastic, foam lined, protective case;
- Traceability of dimensional measurement to NIST;
- Certification to ASTM D945;
- Compliance with ISO 9001:2000 and ISO/IEC 17025;

Available in:

- Part A (solid rubber) die in SI dimensional units;
- Part A (solid rubber) die in U.S. Customary dimensional units;
- Part A (cellular materials) 'rotating die' with integral spindle;
- Part B die in SI dimensional units;
- Part B die in U.S. Customary dimensional units;
- Mallet handle, arbor press mount, & press adapter versions for the Part A (solid rubber) die;
- Mallet handle, arbor press mount, & press adapter versions for the Part B die.

CCSi *Ultra-Life* ASTM D945 Specimen Cutting Dies: Specifications & Pricing

Part Number	Description	Dimensions
CCSi-D945-Ansi	D945 SI Part A (solid rubber) no mounting device	$19.5 \pm 0.13 \text{ mm } \emptyset$
CCSi-D945-Aasi	D945 SI Part A Die with arbor press mount	
CCSi-D945-Apsi	D945 SI Part A Die with press adapter	
CCSi-D945-Amsi	D945 SI Part A Die with mallet handle	
CCSi-D945-Anus	D945 US Part A (solid rubber) no mounting device	$0.75 \pm 0.005 \text{ inch } \emptyset$
CCSi-D945-Aaus	D945 US Part A Die with arbor press mount	
CCSi-D945-Apus	D945 US Part A Die with press adapter	
CCSi-D945-Amus	D945 US Part A Die with mallet handle	
CCSi-D945-Ac	D945 Die Part A (cellular materials) SI and US units are equivalent	$43.70 \pm 0.01 \text{ mm ID}$ $(1.720 \pm 0.001 \text{ inch})$
CCSi-D945-Bnsi	D945 SI Part B Die without mounting device	$12.7 \pm 0.02 \times 23.62 \pm 0.02 \text{ mm}$
CCSi-D945-Basi	D945 SI Part B Die with arbor press mount	
CCSi-D945-Bpsi	D945 SI Part B Die with press adapter	
CCSi-D945-Bmsi	D945 SI Part B Die with mallet handle	
CCSi-D945-Bnus	D945 US Part B Die without mounting device	$0.50 \pm 0.001 \times 0.884 \pm 0.010$
CCSi-D945-Baus	D945 US Part B Die with arbor press mount	
CCSi-D945-Bpus	D945 US Part B Die with press adapter	
CCSi-D945-Bmus	D945 US Part B Die with mallet handle	
Please Request a Quotation for current pricing and delivery.		

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