

**General Characteristics**

In addition to having low melting temperatures CS Alloys are virtually non-shrinking; several expand or grow after they are solid. All are relatively soft and brittle. Some, like CS Alloys, work soften. All have high density, averaging about three cu. ins. per pound. The numbers in parenthesis refer to other CS Alloys literature giving more details on the specific end use. Write for your copy.

	2# Cakes	2# Slabs	3/16" U Bars	Special Shapes on Request	Wire	Typical End Uses	Melting Point - Degree F	Range (Degree F) (No definite melting point)	Melting Point - Degree C	Range (Degree C) (No definite melting point)	Growth or Shrinkage	After Casting	Weight Lbs./In.3	Tensile Strength Lbs./In.2	Brinell Hardness No.	Maximum Load 30 Seconds, Lbs./In.2	Safe Load Sustained Lbs./In.2	Electrical Conductivity Compared with pure cooper	Compositi (%)
<b>Low 117 Alloy</b>	X	X	X	X	No	Use in jiggig or fixturing delicate parts for machining (honeycomb), (B5 Supp. 3); dental models, prosthetic development work; proof casting (internal measurements), (E10); fusible element in safety devices (E3); radiopaque contrast medium in X-Ray; low temperature solder (E9)	117	-	47.2	-	Initial Expansion. Shrinks to .0000" in 30 minutes	Stable in 2 hours at -.0002" Per Inch	.32	5400	12	-	-	3.34%	Bismuth: 4 Lead: 22.6 Tin: 8.3 Cadmium: 5.3 Indium: 19
<b>Low 136 Alloy</b>	X	No	X	X	No	Anchor parts for machining (jet blades), testing, inspection (A1); block lenses in optical manufacturing; proof casting (E10); fusible element in safety devices (sprinkler heads (E3); fusible cores in compound cores; low melt solder (E9); sealing adjustment screws.	136	-	57.8	-	Initial Expansion. .0000" in one Hour	Stable in 5 hours at -.0002" Per Inch	.31	6300	14	-	-	2.43%	Bismuth: 4 Lead: 22.6 Tin: 12.0 Indium: 21
<b>Bend Alloy</b>	X	X	X	X	1/8 & up	Anchor busings in drill jigs (A1); internal or external support of delicate parts for machining (B5); cores for spinning (B4); fusible mandrels in filament winding, fiber-glass lamination (C3); drop hammer and embossing dies (D6); tube	158	-	70	-	Rapid Immediate Growth	Maximum .0057" Per Inch	.339	5590	9.2	10,000	300	4.17%	Bismuth: 5 Lead: 26.6 Tin: 13.3 Cadmium: 10.0

					bending filler (up to 1 3/4" diameter) (H3); heat transfer medium in processing plastics, chemicals, etc. (E4).													
<b>Base Alloy</b>	X	No	X	X	1/8 & up Anchor: Cutlery handles, inserts in wood, metal, plastics (A1); metal parts in glass (Turflex® doors) (A1). Make fusible spinning chucks (B4); mandrels for electroforms (C1); drop hammer dies, stretch form blocks (D6); molds for plaster, plastics (G2); filler for tube bending (tubes over 1 3/4" diameter) (H3); hydrodynamic forming, seamless fittings; duplicate patterns in pottery and foundry (F6); liquid metal in autoclaves, heat treating (E4).	255	-	124	-	Initial Shrinkage Followed by Slow Growth	Maximum Per Inch	.380	6400	10.2	8,000	300	1.75%	Bismuth: 5 Lead: 44.5
<b>Tru Alloy</b>	X	X	X	X	0 Anchor: Shafts in permanent magnet rotors, locator members in aircraft assembly fixtures, metal parts in glass magnets in fixtures (A1). Make nests for parts in jigs and dial feed stations (B5); cores for electroforming (C1); embossing dies, form blocks (D6); joggle jaws; lost wax pattern dies, duplicate foundry patterns (F6); tracer models	281	-	138	-	Net Expansion Per Inch	Maximum Per Inch	.315	8000	22	15,000	500	5.00%	Bismuth: 5 Tin: 42.0



<b>Matrix Alloy</b>	X	No	X	0	No	bolts in concrete floors, locator parts in tooling docks (A1). Used in split jaw chucks, jigs, fixtures (B5); metal forming dies, form blocks, joggle jaws (D6); repairing broken dies (A15); filling blow holes in casting.	217-440	103-227	Rapid Initial Growth For 15 Hours	Maximum .0061" Per Inch	.343	13,000	19	16,000	300	2.57%	Bismuth: 4 Lead: 28.4 Tin: 14.5 Antimony: 9.0
<b>Cast Alloy</b>	X	X	X	X	0	Parallels TRU in its end uses also is preferred by some for electroforming mandrels, lost wax pattern dies due to greater dimensional accuracy; holding jet turbine engine blades for machining.	281-338	138-170	Maximum Shrinkage	Only - .0001" Per Inch	.296	8000	22	15,000	500	7.77%	Bismuth: 40.00 Tin: 60.00