



# SB Specialty Metals LLC

Your *First Choice* for Specialty Metals

## L6 - Technical Data

### General Descriptions:

L6 is a tough, high-strength, oil-hardening tool steel suitable for general purpose applications.

### Example of applications:

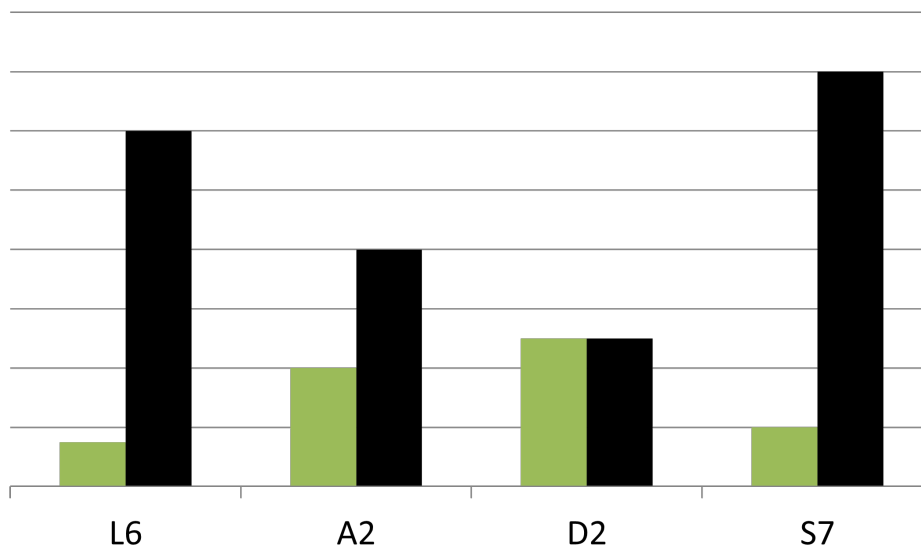
Form rolls, brake dies, machine tool parts, chucks, straightening rolls, shear blades, collets, pinions.

### Chemical Composition

Carbon	Manganese	Silicon	Chromium	Molybdenum	Nickel
0.65-0.75%	0.25-0.80%	0.10-0.50%	0.60-1.20%	0.00-0.50%	1.25-2.00%

### Comparison Chart

■ Wear Resistance ■ Toughness



### Typical Heat Treat Response

Tempering Temp Degrees °F	Hardness HRC 1500 °F	Toughness, Charpy C-Notch Ft.-lbs
As Quenched	63-65	6
300	61-63	19
400	59-61	40
500	56-58	80
600	55-56	85
700	52-54	90
800	49-51	102
900	45-47	103

### Size Changes During Hardening

Hardening Temp °F	Tempering Temp °F	HRC	Longitudinal Size Change %
300	1525	61	+0.11%
400	152	59	+0.10%
500	1525	56	+0.14%

### Surface Treatment

L6 can be given standard surface treatments such as hard chrome plating if desired. Nitriding is not generally practical due to a substantial loss of core hardness.



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### Heat Treatment

#### Annealing

Heat to 1375-1425 °F, hold two hours, cool slowly, 50 °F per hour maximum, to below 1100 °F, then air cool to room temperature.  
Typical annealed hardness is 187-235 BHN.

#### Stress Relieving

Annealed Material: 1100-1300 °F, hold two hours, cool in still air.

Hardened Material: 50 °F below last tempering temperature, hold two hours, cool in still air.

#### Hardening

Full hardness will only be attained in sections less than 2" in cross section.

Preheat: 1250-1350 °F, let parts equalize.

#### High Heat (Austenitizing)

1500-1550 °F, hold 10-30 minutes at temperature.

#### Quench

Quench in oil to room temperature.  
For minimum distortion, parts may be removed from oil at about 400 °F, and air cooled to room temperature.

#### Tempering

350-600 °F; two hours minimum per temper, four hours preferred for heavier sections.

### Physical Properties

<b>Modulus of Elasticity</b>	30 psi x 10 <sup>6</sup> (207 GPa)	<b>Density</b>	0.284 lbs/in <sup>3</sup>
<b>Annealed Hardness</b>	187-235 BHN	<b>Machinability</b>	90% of O1