



Cycletime Tips - Automotive

Volume 33: Tool Steel Characteristics

From time to time, we get questions regarding which tool steel is best suited for certain thermoplastics. Attached is a helpful chart to assist in navigating this critical step in the design of the mold.

AISI Desc.	Typical Rc	~Hardening Temp.	~Tempering Temp.	Wear Res.	Toughness	Comp. Str.	Corrosion Res.	Thermal Cond.	Polishability	Heat Treatability
4140	30-36	1500°F	1200°F	2	8	4	1	5	5	10
P20	30-36	1600	1100	2	6	4	2	5	8	10
414SS	30-34	1550	750	3	9	4	7	2	9	10
420SS	35-40	1885	1050	3	9	4	6	2	9	10
P5	59-61	1575	450	8	6	6	2	3	7	6
P6	58-60	1475	425	8	7	6	3	3	7	8
H13	50-52	1875	1000	6	7	7	3	4	5	6
S7	54-56	1725	550	7	5	8	3	4	8	8
A2	56-58	1750	1000	9	3	9	3	4	7	9
A6	56-58	1600	450	8	4	8	2	5	7	7
D2	56-58	1850	950	10	3	8	4	2	6	9
420SS	50-52	1885	480	6	6	6	7	2	10	8
440SS	56-58	1900	425	8	3	8	8	2	9	7
M2	60-62	2225	1125	10	2	10	3	3	6	8
BECU (.5% CU)	20-24	900	n/a	1	1	1	7	10	9	7

These are just a few of the available materials available to the market. Many of them bring advantages beyond the scope of this chart. Stainless aids in the prevention of cooling line corrosion, for example. Please take the time to discuss the benefits and deficiencies of your potential selection with your tool shop. This becomes especially important as mold-building material price and availability fluctuate with the market or tooling source. Let us know if we can be of further assistance.

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