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Determining
K-thermal conductivity

The K-thermal conductivity chart below provides conductivity values for a variety of steel and non-steel materials under various heating conditions. These factors determine how well heat passes through a material and can be used to improve the tooling and processing of an injection molded part.

For example, if a molder is trying to extract more heat out of one particular area in a molded part, using a different type of material for that specific portion of the mold may be a better alternative than changing the processing temperature for that entire half of the mold.

The chart provides a guideline for increasing or decreasing the heat extraction rates as the design and/or tooling requires.

K-thermal conductivity								
Material	20°C		68°F		200°C		390°F	
	cal	W	BTU	BTU	cal	W	BTU	BTU
	cm.s °C	m. °C	Ft²h. °F in.	Ft h. °F	cm.s °C	m. °C	Ft²h. °F in.	Ft h. °F
A2	.062	26.0	181.0	15.0	.064	27.0	188.0	15.6
D2	.048	20.0	139.0	11.6	.050	21.0	146.0	12.1
D6	.049	20.5	142.0	11.8	.051	21.5	149.0	12.4
H13	.059	24.6	180.0	14.2	.063	26.2	184.0	153.
H11	.042	17.6	122.4	10.2	.057	23.9	165.6	13.8
01	.076	32.0	222.0	18.5	.079	33.0	229.0	19.1
P2 & P4	.069	28.9	200.0	16.7	.070	29.2	203.0	16.9
P20	.069	29.0	202.0	16.8	.070	29.5	205.0	17.1
S7	.069	29.0	202.0	16.8	.072	30.0	207.0	17.3
SS420	.055	23.0	159.0	13.2	.057	24.0	166.0	13.8
SS304	.036	15.1	105.0	8.6				
Silver	.993	418	2900.0	241.6				
Copper	.720	302	2094.0	174.5				
Ampcoloy 940	.513	216	1500.0	125.0				
Magnesium	.379	159	1106.0	92.1				
Aluminium	.362	152	1052.0	87.7				
Ampcoloy 945	.328	138	960.0	80.0				
Be Cu Alloy 25	.319	134	928.0	77.3				
Titanium Al-V	.015	6.57	45.6	3.8				
MgO (compacted)	.007	2.88	20.0	1.7				
Water	.0014	0.6	4.2	.35				
Air	--	0.26	0.18	0.15				