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SKD61

Description

SKD61 alloy steel is a hot-work tool steel under the Japanese standard, corresponding to Chinese designation 4Cr5MoSiV1, American H13 and Korean STD61. It features high-temperature strength, excellent wear resistance, and good machinability.

Features

SKD61 offers a balanced combination of high-temperature strength and toughness, along with excellent thermal fatigue resistance and high hardenability. It provides superior wear resistance and toughness. Compared to ordinary mold steels, it exhibits better resistance to melting and erosion. It offers excellent machinability in the annealed state; after quenching and tempering, it is suitable for precision milling, EDM, and polishing.

It possesses moderate wear resistance, which can be enhanced by increasing surface hardness through carburizing or nitriding. It is mainly used for extrusion dies, die-casting dies, hot forging dies for aluminum, magnesium, and copper alloys, as well as high-volume plastic molds. It is also suitable for aerospace components and small-sized bright steel bars.

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Parameters

Component Elements Properties	Metric
Carbon, C	0.39%
Chromium, Cr	5.2%
Iron, Fe	90.56%
Manganese, Mn	0.40%
Molybdenum, Mo	1.4%
Silicon, Si	1.1%
Sulfur, S	<= 0.0030 %
Vanadium, V	0.95%

Physical Properties	Metric
Density	7.81 g/cc
	7.61 g/cc @Temperature 593 °C
	7.64 g/cc @Temperature 499 °C

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Mechanical Properties	Metric
Hardness, Rockwell C	53
	54
Tensile Strength, Ultimate	359 MPa @Temperature 649 °C
	586 MPa @Temperature 649 °C
	1100 MPa @Temperature 316 °C
	1380 MPa @Temperature 316 °C
Tensile Strength, Yield	331 MPa