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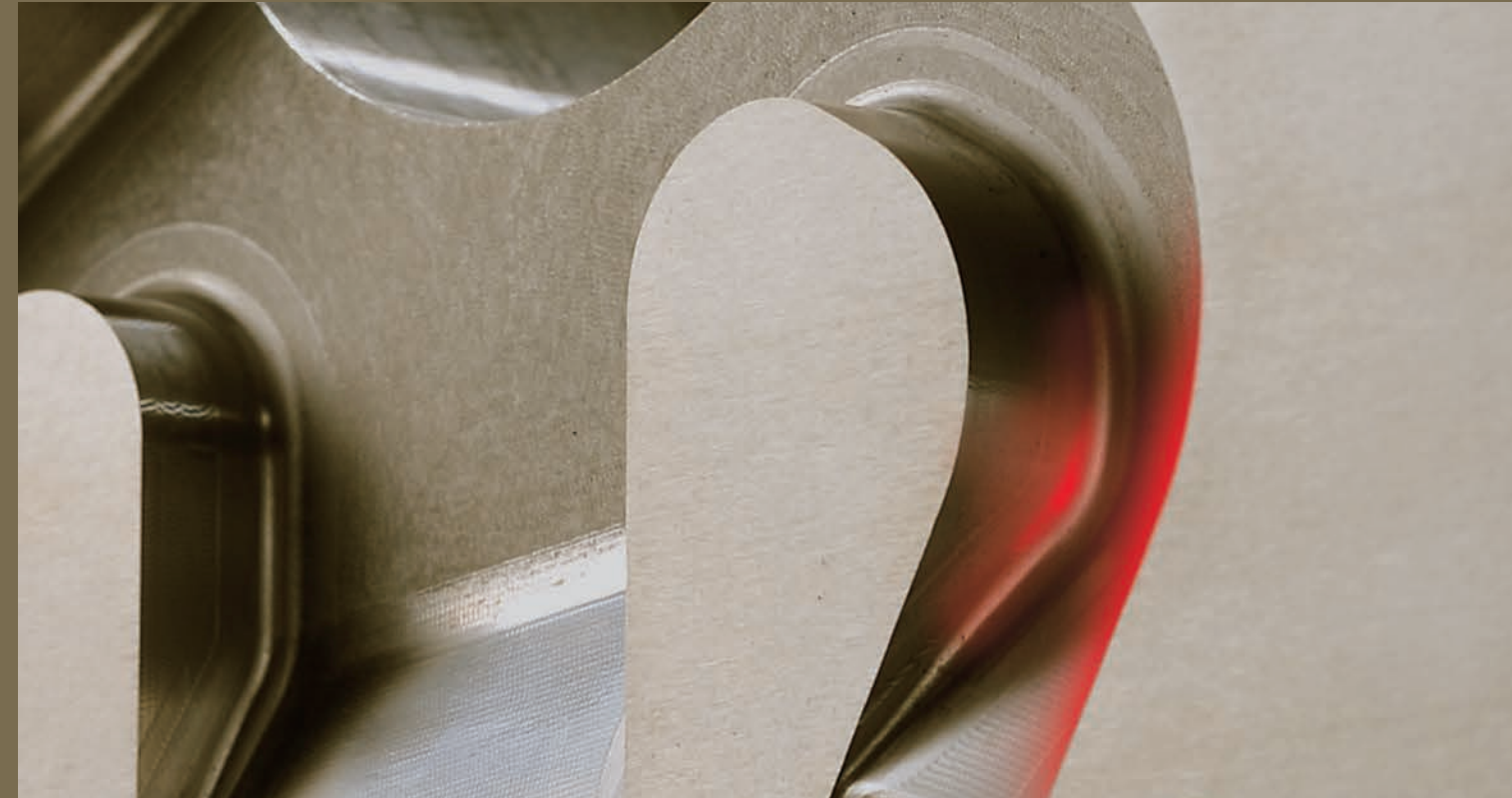
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YSS Advanced Die Steel for Die Casting

DAC-MAGIC™



Notes about safety

Steel is heavy. Please execute the safety measures to prevent falling or collapse of cargo or sandwiched during transportation or warehousing. Please ensure the safety of workers use the jigs and various protective equipment and follow the applicable laws and ministerial ordinance, ordinances, guidelines, etc. when sawing, cutting, heat treatment, polishing or when using as mould, machine parts, or tooling.

OUR HERITAGE, YOUR ADVANTAGE **YASUGI SPECIALTY STEEL**

Hitachi Metals



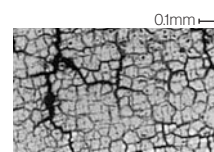
YSS Advanced Die Steel for Die Casting

DAC-MAGIC™

The range of applications of die cast products for weight saving and recycling is expanding while awareness of environmental protection is increasing. This fact requires bigger die cast products to be produced with higher quality in short cycle time. In order to meet such needs, DAC-MAGIC™ is one of the best materials for die casting which has not only good heat crack resistance but also good toughness.

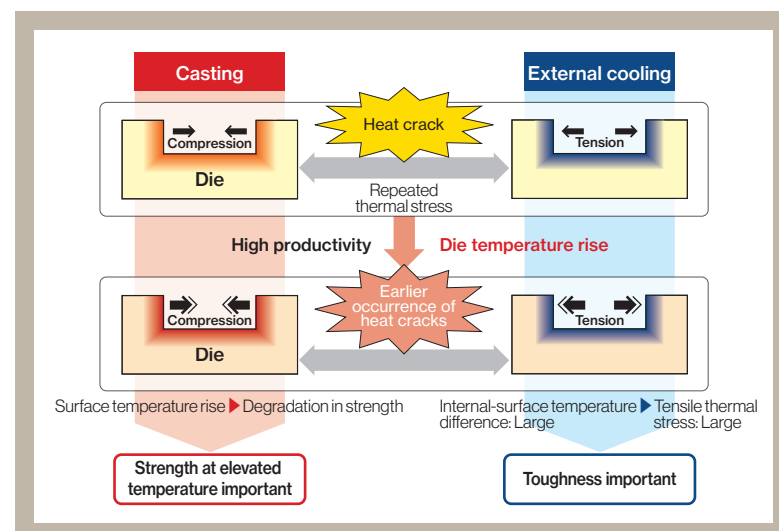
If the casting cycle time becomes short, heat cracks occur at early stage.

Therefore, Die steel with higher strength at elevated temperature and better toughness is strongly required.



Heat crack appearance.

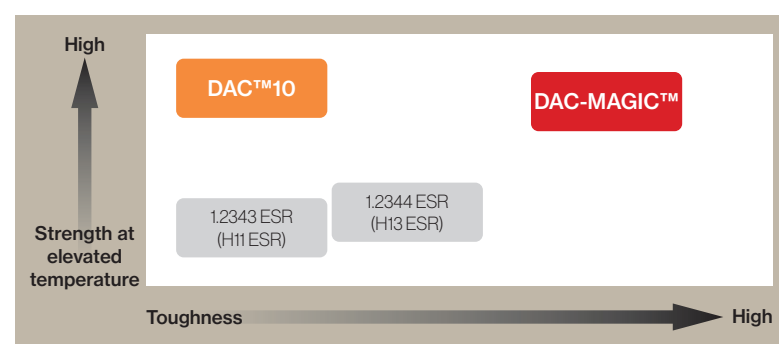
Heat Crack Occurrence Mechanism and High Productivity



Characteristics

DAC-MAGIC™: Advanced die steel, good heat crack resistance and good toughness.

DAC™10: Good erosion resistance.



Relative Comparison

Steel Grade	Performance				Recommended use
	Strength at elevated temp.	Toughness	Heat crack resistance	Resistance to stress corrosion cracking	
DAC-MAGIC™	A	A	A	A	Large / Medium size, Squeeze die
DAC™10	A+	C	A	C	Medium / Small size, Precision die
H13 (1.2344)	C	B	C	C	Ordinary

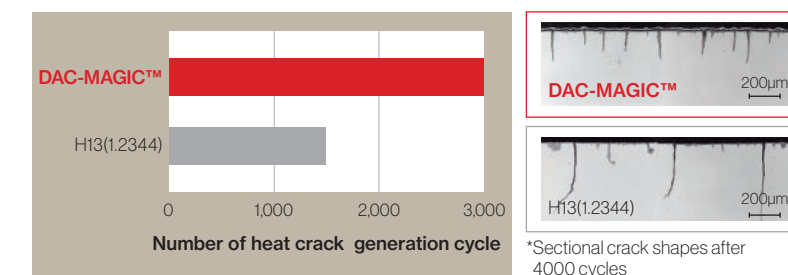
Ranking: A --- Best, B --- Ordinary, C --- Poor

DAC-MAGIC™ is a high performance die steel with Strength at elevated temperature and Toughness.

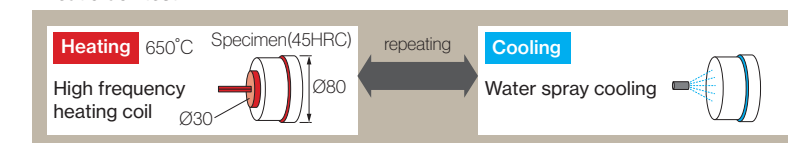
It excels in both Heat crack resistance and Stress corrosion cracking resistance.

DAC-MAGIC™ contributes to longer die life due to better heat crack resistance, compared with H13(1.2344).

Heat Crack Resistance

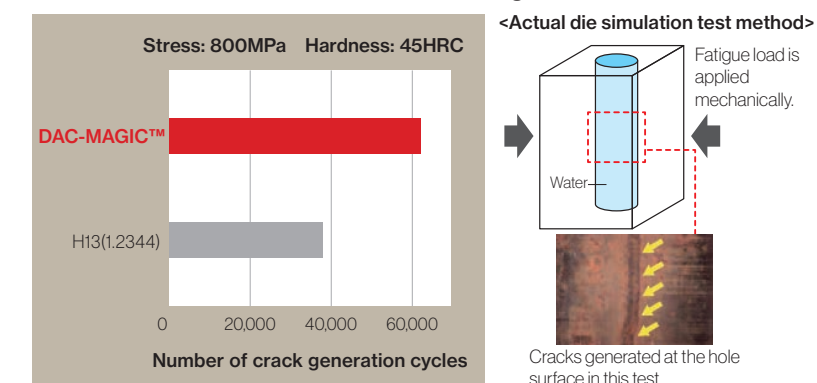


<Heat crack test>



DAC-MAGIC™ has excellent resistance to stress corrosion cracking and suppresses cracking from cooling channel.

Resistance to Stress Corrosion Cracking



- Applications
 - Die casting in general use,
 - Squeeze die casting,
 - Precision die casting.

DAC-MAGIC™ is approved NADCA #207-2011 Grade C.

Application Examples

Die casting Products	Machine Capacity / Die parts	Actual Performance Comparison		Benefit
		Current	Improvement	
Auto parts	2,500 ton Insert	H13 (43HRC) Heat cracks	DAC-MAGIC™ (44HRC)	More than 1.5 times
Auto parts	1,250 ton WJ Insert	Life span of other company material B are 20K-50K shots.	DAC-MAGIC™(46HRC) Still on service after 100K shots	2 times
Auto parts	1,600 ton	Life span of other company material (46-47HRC) is 29K shots	DAC-MAGIC™ (47-48HRC) Still on service after 62K shots	More than 2.1 times

Standard Heat Treatment

Quenching: 1,010 ~ 1,030 °C rapid cooling
Tempering: 550 ~ 640 °C air cooling

Recommended hardness

Small/Medium size dies: 45-52HRC
Large size dies: 42-46HRC

<Attention> The characteristics, photos, charts, ranking and evaluation of this catalog are representative value by our test data, it does not guarantee the quality of the product. This catalog and its contents are subject to change without notices.