



钢铁之家

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# 全球钢号百科!

Global Steel Grade Encyclopedia



涵盖的行业或国家与地区类别



中国材料与试验协会

GJB

国家军用标准



动力机械工程师协会

EU

前欧洲标准化

AISI

美国钢铁学会



德国工业标准

AMS

航空航天材料规范



国际标准

JASO

日本汽车标准组织

EN

欧洲标准

JB

中国机械行业标准

UNS

统一编号系统

UNI

意大利标准



美国机械工程师协会

SS

瑞典标准



国家标准



日本工业标准

# DATA SHEET

~AISI H13 - W.Nr. 1.2344 - X40CrMoV5-1

## HOT WORK TOOL STEEL

### TYPICAL APPLICATIONS

- Tooling for Aluminum Die Casting
- Aluminum and magnesium extrusion dies
- Die inserts and forging dies
- Plastic Mold Dies
- Cores, sleeves and slides

### GENERAL

#### Delivery Condition:

Annealed to 229 BHN Max.

#### Quality Levels:

**DC®:** Quality for Insert or Die Cavities for Hot Forging or Molding

**DC®Q VAR or ESR:** High Polishing Quality for Plastic Molding

**DC® - Premium:** Fine Structure Quality for Low Pressure Die Casting NADCA Grade A

**DC® - Superior:** Remelted Fine Structure Quality for High Pressure Die Casting NADCA Grade B

**DC®** is a high quality tool steels with high impact and shock resistance. It also has good wear resistance at high temperature.

**DC®** is suitable for many hot work and cold work applications like hot heading, hot forging, hot punching, hot piercing, hot trimming dies, heavy duty hot and cold shear blades, forming tools and bending tools.

**DC®** has an excellent combination of high strength and toughness. It can reach hardnesses typically in the 42 to 52 HRC range with the standard hardening procedures by most vacuum heat treating operations.

### Typical Chemical Analysis - % weight

C	Mn	Si	Cr	Mo	V
0.38	0.35	1.00	5.25	1.50	1.00

**DC®** is forged using a special densifying process which assures optimum consolidation of centerline of tooling.

It is forged on our largest presses equipped with wide dies assuring maximum deformation during forging process.

All Quality Levels of **DC®** are characterized by :

- Improved wear resistance
- High temperature strength
- High impact resistance

In addition, **DC®Q** has:

- Highest Polishability for lasting mirror finish

**DC® - Superior:** has further improved impact properties for the highest requirements.

**DC®** is 100% ultrasonic tested to very high standards and acceptance levels. It is defect free.

**DC®** can be supplied pre-certified to NADCA standard #207 on request.

# DATA SHEET

## HOT WORK TOOL STEEL

### HEAT TREATMENT

#### ANNEALING

Temperature: 1500-1550°F (816-843°C)  
Rate of cooling: 25°F (14°C) max per hour

Typical annealed hardness: 229 BHN Max.

Key parameter of the NADCA recommended procedure for hardening dies for die casting service are:

#### HARDENING

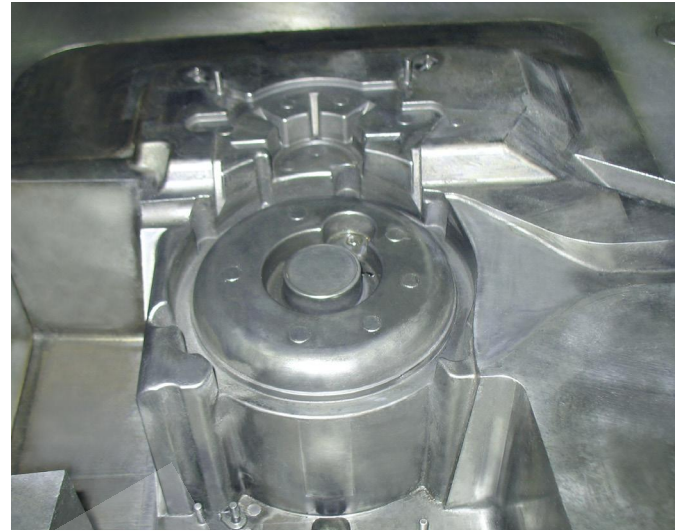
Rate of heating: slow  
Preheat Temperature: 1200-1300°F (650-705°C)  
Hardening Temperature: 1875-1895°F (1025-1035°C)  
Time at temperature: 30-45 minutes  
Quenching to 300°F (150°C)

#### TEMPERING

Tempering Temperature: 1050°F (565°C) minimum

#### STRESS RELIEVING

Temperature: 50-100°F (30-55°C) below final tempering temperature and slow cool to 875°F (470°C), then air cool.



based system that allow for:  
- Online quoting and ordering  
- Real-time order tracking  
- Customized report generation

**Note:** Provided technical data and information in this data sheet are typical values. Normal variations in chemistry, size and conditions of heat treatment may cause deviations from these values. We suggest that information be verified at time of enquiry or order. For additional data or metallurgical assistance, please contact us.

### SIZE

(Finished / approx.)

Max weight	16 330 kg	36 000 lbs
Max section	0.90 m <sup>2</sup>	1 400 sq in
Max width	1 270 mm	50"
Max thickness	760 mm	30"