

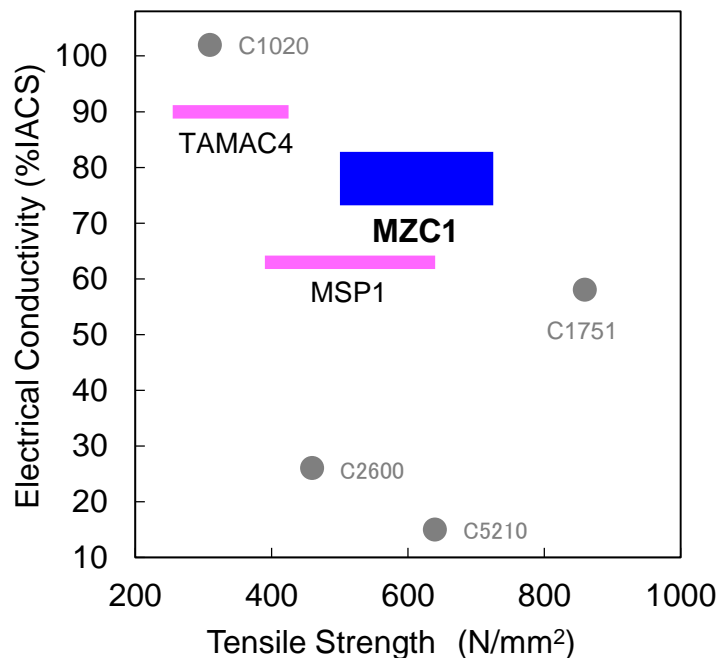
MZC1

CDA alloy No. C18140 (Temper: 1/2H, H) C18141 (Temper: SH)

1. Main features

- Has high Tensile Strength and high Electrical Conductivity.
- Has excellent heat resistance and excellent stress relaxation resistance characteristics.
- Has excellent fatigue properties.

4. Positioning of Alloy



2. Chemical composition

(Weight%)

Cr	Zr	Si	Cu
0.25	0.1	0.02	Rem.*

* Including inevitable impurities and trace additive elements.

3. Physical properties

Property	Representative Value	
	Specific Gravity (293 K)	8.9
Coefficient of Thermal Expansion (/K : 293~573 K)	17.1 × 10 ⁻⁶	
Thermal Conductivity (W/(m·K) : 293 K)	H	SH
	316	287
Electrical Conductivity (%IACS : 293 K)	H	SH
	82	74
Modulus of Elasticity (kN/mm² : 293 K)	137	
Poisson's ratio (293 K)	0.32	

5. Mechanical properties

	Temper			Typical values		
	1/2H	H	SH	1/2H t:0.15mm	H t:0.15mm	SH t:0.16mm
Tensile Strength (N/mm²)	500~600	555~655	575~725	538	598	632
0.2% Yield Strength (N/mm²)	455~555	530~630	530~705	502	567	611
Elongation (%)	6 Min.	3 Min.	2 Min.	16	14	13
Elastic Limit Kb _{0.1} ^{※1} (N/mm²)	-	-	-	471	528	559
Vickers Hardness ^{※2} (HV)	(130~190)	(160~220)	(170 Min.)	(164)	(181)	(202)

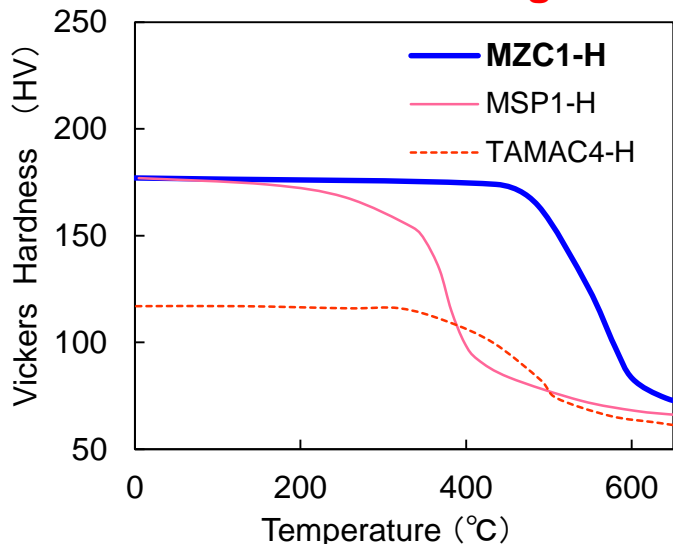
※1 Sampling direction : T.D.

※1, 2 Reference value

MZC1

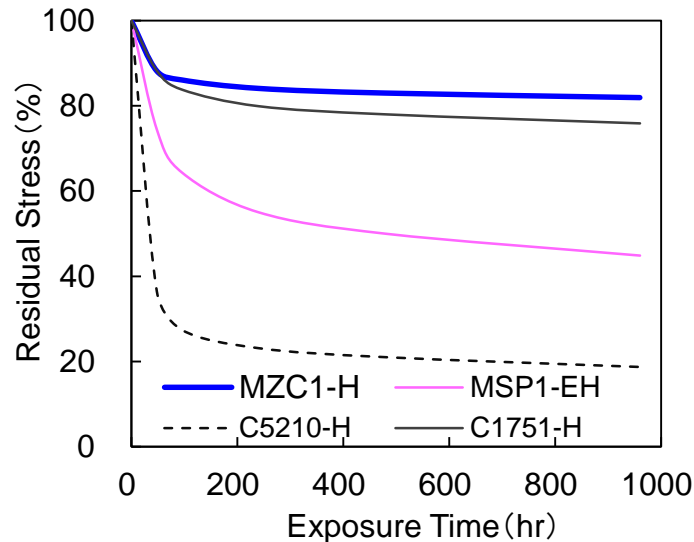
CDA alloy No.C18140(Temper:1/2H, H) C18141(Temper:SH)

6. Resistance to Softening



Exposure Time: 1hr

7. Stress relaxation resistance



Exposure Temperature: 200°C

Sampling Direction: L.D.

Bending Stress: 80% of 0.2% yield strength

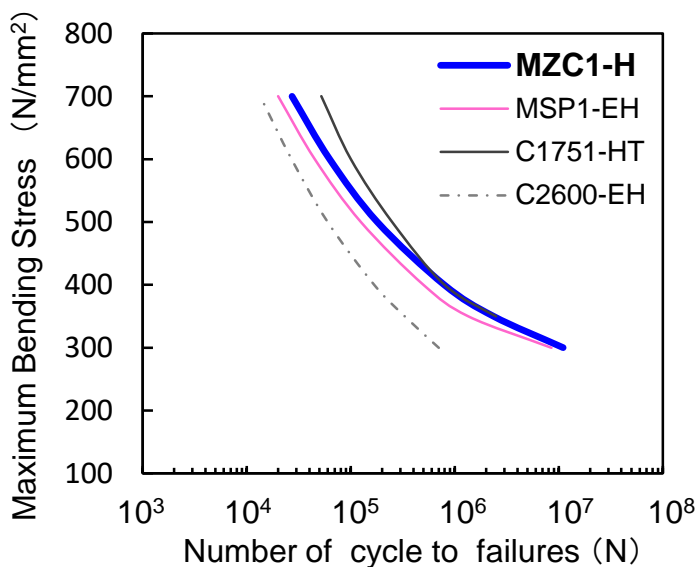
8. Bendability

Specimen: Width10mm Test Method:90° W-Bend Load:9.8kN

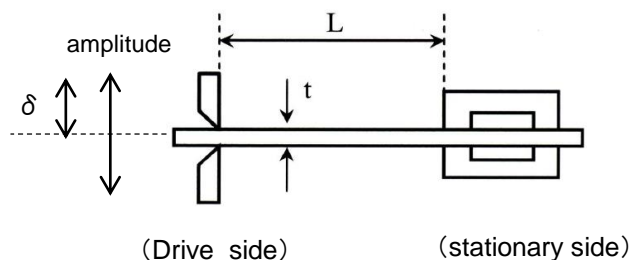
Temper	Sampling Direction (to the rolling direction)	Bending Radius(mm) R										R/t
		0.0	0.1	0.125	0.15	0.2	0.25	0.4	0.6	0.8	1.0	
H t;0.16mm	0°: Good Way	△	△	△	△	△	△	○	○	◎	◎	0.00
	90°: Bad Way	▲	▲	▲	▲	▲	▲	▲	▲	△	○	◎
SH t;0.16mm	0°: Good Way	▲	△	△	△	△	△	○	○	◎	◎	0.63
	90°: Bad Way	▲	▲	▲	▲	▲	▲	▲	▲	▲	△	6.25

Method of evaluation: ◎Good (Acceptance), ○Minor rough surface (Acceptance), △Major rough surface (Acceptance), ▲Minor crack (Rejection), × Major crack (Rejection)

9. Fatigue properties



Sampling Direction: L.D.



Calculation of formula of Bending stress σ (N/mm²)

$$\sigma = 3/2 \cdot [(E \cdot t)/L^2] \cdot \delta$$

E: Modulus of Elasticity of specimen (N/mm²)

t: Thickness of specimen (mm) L: Length of specimen (mm)

δ: Half amplitude on specimen (mm) ※ δ = 2mm