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Al-Zn

Al-Zn, with the cold rolled steel of different strength and thickness as substrate, is produced through applying Al-Zn coat on both faces by hot dip process. In its coating, Al accounts for about 55%, Si 1.6% while the remaining is Zn. It enjoys both the physical protective feature and durability of Al and the electrochemical protective property of Zn. Its surface has bright silver colour.

It finds applications in:

ARCHITECTURE for roofs and outside walls of civilian and industrial buildings, garage doors, fencing and window blinds.

APPLIANCE INDUSTRY it is used for the production of outer clad sheets for washing machines, refrigerators, televisions, air conditioners and ventilation systems, explosion—proof strip, solar water heater and appliance parts.

AUTOMOTIVE for mufflers, heat shields of exhaust pipes and catalytic converter, parts and accessories under the frame, signboards.

INDUSTRY for electric control cabinets, industrial refrigeration equipment, automatic vending machine.

	Mechanical properties		
	YS Rp_{02} MPa	TS R_m MPa	El % min
Cold forming grade			
DC51D+AZ	–	270-500	22
DC52D+AZ	140-300	270-420	26
DC53D+AZ	140-260	270-380	30
DC54D+AZ	120-220	260-350	36

- When yield is not obvious, $Rp_{0.2}$ is to be used. Otherwise, use R_{eL}.
- The tensile test sample is same as the P6 sample in GB/T228. This is a transversal sample.
- When the nominal thickness of the steel is between 0.50 mm and 0.70 mm, the specific elongation after rupture is allowed to have 2 units lowered. But, when the nominal thickness of the steel is no greater than 0.50 mm, the specific elongation after rupture is allowed to have 4 units lowered.
- With regard to the plate and strip of DC51D+AZ and DC52D+AZ, their physical properties are guaranteed to remain same as those specified as in the above table, within one month after the production, while with regard to other grades, their physical properties are guaranteed to remain same, within six months after the production.

	Mechanical properties			
	YS Rp_{02} MPa min	TS R_m MPa min (a, b, c)	El % min	
			A80mm	(L_0=80mm, b=25mm)
Structural grade				
S250GD+AZ [d]	250	330	19	
S300GD+AZ [d]	300	380	18	
S350GD+AZ [d]	350	420	16	
S550GD+AZ [e f]	550	550	–	2
HX420LAD+AZ	420	470	17	

a Longitudinal sample is used for tensile test.
b When yield is not obvious, $Rp_{0.2}$ is to be used. Otherwise, use ReH.
c When the nominal thickness of the steel is no greater than 0.70 mm, the specific elongation after rupture is allowed to have 2 units lowered.
d The sample is same as the P6 sample in GB/T228.
e The sample is same as the P14 sample in GB/T228.
f As for the low grade steels like S550GD+AZ, when the thickness is no greater than 0.7 mm, yield strength cannot be measured because of the plate thinning effect that leads to too low specific elongation. At that time, the yield strength should be replaced by the tensile strength.

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Surface finish and treatment

		Symbol
	Al-Zn alloy coating	AZ
Surface finish	Regular spangle	
	Chromate passivated	C
	Non-Chromate passivated	C5
	Chromate passivated + oiling	CO
	Non-chromate passivated + oiling	CO5
	Antifingerprint	N
	Non chromate antifingerprint treatment	N5
	Oiling	O
	No treatment	U

Reflection ability of heat and light is twice as much as that of hot-dip zinc steel sheet, and its reflectivity is more than 0.75 exceeding 0.65 required by the EPA Energy Star.
Al-Zn coated steel sheet has better performance in corrosion resistance than galvanised material of the same thickness and its service life is 1-5 times longer than general galvanised sheet.

Comparison by atmospheric exposure test

Environment	Average corrosion GI		Average corrosion Al-Zn	
	g/m2/y	µ m/y	g/m2/y	µ m/y
Tough marine climate	140	9.8	16	2.2
Moderate marine climate	18	1.3	4	0.54
Industrial climate	20	1.4	4.2	0.57
Countryside climate	4	0.28	1.3	0.17

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