Electrical Steel Grade Equivalents

Cross-Reference Chart -- GB / JIS / EN / AISI

Cross-reference chart for electrical steel grades across GB, JIS, EN and AISI naming systems, with core loss and thickness equivalents for common CRGO and CRNGO grades.

1. Grade Cross-Reference Table

GB/T 2521 (China)	JIS C 2552/2553 (Japan)	EN 10106/10107 (Europe)	AISI M-series (USA)	Type	Thickness	Core Loss Ceiling
50W270	50A270	M270-50A	M15	Non-oriented	0.50mm	P1.5/50 <= 2.70 W/kg
50W400	50A400	M400-50A	M19	Non-oriented	0.50mm	P1.5/50 <= 4.00 W/kg
50W470	50A470	M470-50A	M22	Non-oriented	0.50mm	P1.5/50 <= 4.70 W/kg
50W800	50A800	M800-50A	M36	Non-oriented	0.50mm	P1.5/50 <= 8.00 W/kg
23QG090	23ZH90	M90-23P	--	Grain-oriented, Hi-B	0.23mm	P1.7/50 <= 0.90 W/kg

Note on AISI grain-oriented range: the M-series' grain-oriented band (M2-M6) does not map cleanly onto Hi-B grades like 23QG090 -- treat this as a mill-to-mill conversation, not a table lookup.

2. How to Read Each Naming System

GB/T 2521 (China): [thickness in hundredths of mm][W or Q][core loss x100]
e.g. 50W400 = 0.50mm, non-oriented ("W"), 4.00 W/kg core loss ceiling.

JIS C 2552/2553 (Japan): [thickness in hundredths of mm][A, P or Z][core loss x100]
"A" = non-oriented, "P" = conventional grain-oriented, "Z" = Hi-B. e.g. 50A400 = 0.50mm non-oriented, 4.00 W/kg.

EN 10106/10107 (Europe): M[core loss x100]-[thickness in hundredths of mm][letter]
Order is flipped -- core loss comes first. e.g. M400-50A = 4.00 W/kg, 0.50mm, non-oriented.

AISI M-series (USA): M2-M6 (grain-oriented), M15-M47 (non-oriented). Numbered roughly by increasing core loss; does NOT encode the exact value in the code the way GB/JIS/EN do -- always confirm against a cross-reference table rather than assuming from the number alone.

3. Coating Class (Separate From Grade Code)

Insulation coating classes run roughly C-2 through C-6. Grade code describes the base steel only -- coating class must be confirmed separately on every quote (it typically appears on the mill test certificate, not the marketing spec sheet).

4. Test Conditions

P1.5/50 = core loss measured at 1.5 Tesla, 50Hz (standard reference for non-oriented steel)
P1.7/50 = core loss measured at 1.7 Tesla, 50Hz (standard reference for grain-oriented steel)
Only compare core loss figures measured under the same test condition.

5. Before You Order -- Verification Checklist

[ ] Confirm both grades were tested at the same reference frequency/induction
[ ] Request the mill test certificate (actual measured values, not nominal ceiling)
[ ] Confirm coating class separately -- do not assume it matches your previous supplier
[ ] Run a small trial order before switching standards on a critical application
[ ] Ask whether test data is CNAS-accredited or equivalent third-party verified

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