

Table 5

No.		31	32	33	34	35	
Steel		D	D	D	D	G	
Cold rolling	First stage	Thickness of the steel plate before rolling mm	4.0	4.0	4.0	4.0	3.0
		Thickness of the steel plate after rolling mm	2.5	2.0	1.5	1.0	0.35
		Reduction %	37.5	50.0	62.5	75.0	88.3
	Second stage	Thickness of the steel plate before rolling mm	2.5	2.0	1.5	1.0	—
		Thickness of the steel plate after rolling mm	0.3	0.3	0.3	0.3	—
		Reduction %	88.0	85.0	80.0	70.0	—
Composition	C ppm	< 25	< 25	< 25	< 25	< 25	
	Si %	3.01	3.00	2.99	3.01	3.5	
	Mn %	0.64	0.63	0.65	0.63	0.3	
Mn concentration	Density in the surface %	0.48	0.47	0.48	0.46	0.3	
	Density ratio in the surface	0.67	0.65	0.66	0.64	0.99	
	Maximum ratio of reduction %/ $\mu\text{m}$	0.006	0.006	0.006	0.006	< 0.0001	
Average grain size vs. sheet thickness (ratio)		3.1	4.2	5.3	6.1	0.6	
Density ratio of (100) planes parallel to the surface of sheet		53	42	63	56	2.3	
Properties after annealing	Presence or absence of abnormal magnetization		absence	absence	absence	absence	absence
	Magnetic flux density	Rolling direction X1 T	1.752	1.775	1.792	1.859	1.558
		Direction of the width of plate X2 T	1.732	1.751	1.790	1.845	1.428
		45° direction Y T	1.462	1.442	1.416	1.360	0.420
		Average value of X1 and X2 X T	1.742	1.763	1.791	1.852	1.493
		$2(X-Y)/(X+Y)$	0.175	0.200	0.234	0.306	0.050