



General physical and mechanical properties of CRGO steel	
Density	7.65 g/cm ³
Thickness of sheet	0.23 - 0.35 mm
Silicon content	3-4 %
Yield Point (relative to rolling direction)	0 degrees • 330 N/mm ² 90 degrees • 355 N/mm ²
Tensile strength	0 degrees • 348 N/mm ² 90 degrees • 412 N/mm ²
Elongation	0 degrees • 11% 90 degrees • 31%
Number of bends	0 degrees • 21 90 degrees • 15
Hardness (Hv)	204
Stacking factor	95-98%

Grade classification of Electrical Steel

Electrical Steel	Grade (BIS nomenclature)	Grade (Conventional nomenclature)	Thickness (mm)	Max Core loss (W/kg) 50 Hz	
				@1.5T	@1.7T
CRGO	20HP70D	20-70	0.20	0.52	0.70
	23HP75D	23-75	0.23	0.55	0.75
	23HP85D	23ZDKH	0.23	0.60	0.85
	23HP90	23M0-H	0.23	0.64	0.90
	23HP100	M3 (Low loss)	0.23	0.68	1.00
	23CG110	M3	0.23	0.70	1.10
	27HP90D	27ZDKH	0.27	0.66	0.90
	27HP100	27M0-H	0.27	0.70	1.00
	27HP110	M4 (Low loss)	0.27	0.78	1.10
	27CG120	M4	0.27	0.85	1.20
	30CG130	M5	0.30	0.90	1.30
CRNGO	35C230		0.35	2.30	
	50C470		0.50	4.70	
	50C600		0.50	6.00	

Tolerance chart for dimensions of CRGO laminations (as per IS 3024)

Attribute	Attribute Range/Value	Tolerance
Width	0 - 100 mm 100 mm - 230 mm 230 mm - 400 mm 400 mm - 750 mm	+0.00 / -0.15 mm +0.00 / -0.20 mm +0.00 / -0.30 mm +0.00 / -0.50 mm
Length	0 - 350 mm 350 mm - 1,000 mm 1,000 mm - 2,000 mm 2,000 mm - 3,000 mm 3,000 mm - 4,000 mm	+0.00 / -0.30 mm +0.00 / -0.60 mm +0.00 / -1.00 mm +0.00 / -1.50 mm +0.00 / -2.00 mm
Thickness	0.23 - 0.27 mm 0.30 - 0.35 mm	+/- 0.025 mm +/- 0.030 mm
Mitering Angle	45 degrees	+/- 5 minutes
Burr Height	0.18 - 0.23 mm 0.23 - 0.30 mm 0.30 - 0.35 mm	10 microns 15 microns 20 microns
Wave Factor	Material width > 150mm, Flatness deviation	Max. 1.5% of width
Edge Camber	Material width > 150mm	Max. 0.8 mm for length of 1.5m
Hole Dimension	Up to 34 mm	+/- 0.15 mm