

AK Steel DI-MAX® M-15 Nonoriented Electrical Steel

Category : Metal , Electronic/Magnetic Alloy

Material Notes:

Nonoriented electrical steels are silicon steels in which magnetic properties are practically the same in any direction of magnetism in the plane of the material. Standard grades from M-15 to M-47 are available with the advantages of special DI-MAX® processing that enhance the magnetic properties. DI-MAX grades have superior permeability at high inductions, low average core loss and good gauge uniformity. In addition, cold finishing plus strip annealing produce a smooth surface and reduce buckles and waves, resulting in excellent flatness and a high stacking factor. AK Steel Nonoriented Electrical Steels are available both Fully Processed and Semi-Processed, depending on grade. Properties of Fully Processed material are developed completely by AK Steel. These materials are ready for use without any additional processing required. However, a low-temperature heat treatment may be employed by the user to eliminate stresses introduced by fabrication of the material into cores. AK Steel Fully Processed Nonoriented Electrical Steels meet all the requirements of ASTM Specification A 677. Semi-Processed steels are finished to final thickness and physical form by AK Steel, but are not fully annealed to develop final magnetic quality. With these materials, achievement of magnetic properties becomes the responsibility of the user. AK Steel Semi-Processed Nonoriented Electrical Steels meet all requirements of ASTM A 683. DI-MAX M-15 is Fully Processed. Applications for M-15: Large Motors and Generators (>100 HP) Information provided by AK Steel

Order this product through the following link:

http://www.lookpolymers.com/polymer_AK-Steel-DI-MAX-M-15-Nonoriented-Electrical-Steel.php

Physical Properties	Metric	English	Comments
Density	7.65 g/cc	0.276 lb/in ³	

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell B	72	72	
Tensile Strength, Ultimate	490 MPa	71000 psi	
Tensile Strength, Yield	359 MPa	52000 psi	
Elongation at Break	23 %	23 %	in 2"

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.0000500 ohm-cm	0.0000500 ohm-cm	

Magnetic Properties	Metric	English	Comments
Core Loss	3.20 W/kg	1.45 W/lb	0.014"; ASTM A677
	@Magnetic Field 1.50 T, Frequency 60.0 Hz	@Magnetic Field 1.50 T, Frequency 60.0 Hz	
	3.53 W/kg	1.60 W/lb	

Magnetic Properties	@Magnetic Field 1.50 Metric	@Magnetic Field 1.50 English	0.0185" ASTM A677 Comments
	Frequency 60.0 Hz	Frequency 60.0 Hz	

Descriptive Properties	Value	Comments
Coercive Force (Oe)	0.41	B_{max} = 10kG
Hysteresis loss (J/lb/cycle)	0.0068	B_{max} = 10kG
Maximum Permeability	8000	
Saturation Induction Kilogausses	20.1	

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