



# Grain Oriented Electrical Steels

GOES are supplied in accordance to Standard EN CSN 10107:2006

## Magnetic Properties and Stacking Factor

Steel Grade	Nominal thickness (mm)	Maximum specific total loss / max W / kg at 50 Hz and at		Minimum magnetic polarization (T) for H = 800 A/m	Minimum Stacking Factor
		1,5 T	1,7 T		
M120-27S	0,27	0,80	1,20	1,78	0,950
M130-27S	0,27	0,85	1,30	1,78	0,950
M140-27S	0,27	0,89	1,40	1,75	0,950
M130-30S	0,30	0,85	1,30	1,78	0,955
M140-30S	0,30	0,92	1,40	1,78	0,955
M150-30S	0,30	0,97	1,50	1,75	0,955
M140-35S	0,35	1,00	1,40	1,78	0,960
M150-35S	0,35	1,05	1,50	1,78	0,960
M165-35S	0,35	1,11	1,65	1,75	0,960

Typical Magnetic Properties of GOES produced in ArcelorMittal Frýdek-Místek

Grade	J800 (T)	P 1,5 T at 50 Hz (W/kg)	P 1,7 T at 50 Hz (W/kg)
M120-27S	1,87	0,78	1,14
M130-27S	1,86	0,82	1,21
M140-27S	1,85	0,87	1,29
M130-30S	1,87	0,83	1,18
M140-30S	1,86	0,88	1,26
M150-30S	1,84	0,93	1,32
M140-35S	1,86	0,96	1,32
M150-35S	1,85	1,02	1,42
M165-35S	1,83	1,07	1,53

Note: Typical values are for indicative purposes only.

## Standard Sizes

Grade	Thickness (mm)	Width		Inside Coil Diameter (mm)
		Available Range (mm)	Standard (mm)	
M120-27S	0,27	850 - 950	950	508
M130-27S	0,27	850 - 950	950	508
M140-27S	0,27	850 - 950	950	508
M130-30S	0,30	850 - 950	950	508
M140-30S	0,30	850 - 950	950	508
M150-30S	0,30	850 - 950	950	508
M140-35S	0,35	850 - 950	950	508
M150-35S	0,35	850 - 950	950	508
M165-35S	0,35	850 - 950	950	508

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## Strip width tolerances

Nominal width (mm)	Width tolerances (mm)
$l \leq 150$	0 / - 0,2
$150 \leq l \leq 400$	0 / - 0,3
$400 \leq l \leq 750$	0 / - 0,5
$l > 750$	0 / - 0,6

Note: When agreed in order all tolerances can be plus values.

## Thickness and its tolerances

The nominal thicknesses of the material are 0,27 mm; 0,30 mm and 0,35 mm.

At any point, the allowable tolerance on the nominal thickness within the same acceptance unit shall not exceed  $\pm 0,030$  mm.

Additional thickness due to welds with respect to the measured thickness of the steel strip shall not exceed 0,050 mm.

## Insulating coating

Both sides of grain oriented electrical steel strip are coated with C2 insulation, which is covered with C5 phosphate insulating coating.

Total thickness of these coatings is in the range 1 – 3 micron/side.

Typical resistance of insulating coating is min.  $10 \Omega\text{cm}^2$  measured by Franklin test according to EN 10282:2001; method A.

Insulating coating does not affect and is unaffected by transformer oil.

