

# VITROPERM<sup>®</sup> 220

# VITROPERM<sup>®</sup> 250



## NOMINAL ALLOY COMPOSITION

Alloy	Fe	Ni	Co	Cu	Nb	Si	B	
VP 220	Balance (66.4)	11.6	8.1	1.0	5.3	5.9	1.7	(wt-%)
	60.5	10.1	7.0	0.8	2.9	10.7	8.0	(at.-%)
VP 250	Balance (74.2)	11.6	–	1.0	5.3	6.2	1.7	(wt-%)
	67.2	10.0	–	0.8	2.9	11.2	8.0	(at.-%)

## MAGNETIC PROPERTIES<sup>1</sup>

Property	VP 220	VP 250
Saturation polarization (as cast / amorphous @ 20 °C)	1.19 T	1.18 T
Saturation polarization (nanocrystalline @ 20 °C)	1.24 T	1.24 T
Saturation magnetostriction (as cast / amorphous)	25 ppm	23 ppm
Saturation magnetostriction (nanocrystalline)	10 - 11 ppm	8 - 9 ppm
Permeability (transverse field annealing ½ h @ 510 °C)	2,400	4,000
Permeability (transverse field annealing ½ h @ 530 °C)	2,000	3,200
Permeability (transverse field annealing ½ h @ 550 °C)	1,800	2,800
DC coercivity (F annealed / flat hysteresis loop)	> 5 A/m	> 3 A/m
Curie temperature	600 °C	600 °C

## PHYSICAL PROPERTIES<sup>1</sup>

Property	VP 220	VP 250
Mass density (as cast / amorphous)	7.42 g/cm <sup>3</sup>	7.35 g/cm <sup>3</sup>
Mass density (nanocrystalline)	7.62 g/cm <sup>3</sup>	7.55 g/cm <sup>3</sup>
Electrical resistivity	1.15 μΩm	1.15 μΩm
Coefficient of thermal expansion (20 - 100 °C)	8•10 <sup>-6</sup> /K	8•10 <sup>-6</sup> /K
Crystallization temperature	460 °C	480 °C

## AVAILABLE DIMENSIONS

Property	Value	Unit
Thickness (computed average thickness from weight)	20 ± 3	μm
Widths – slit to width (others on request)	2.0 ... 50.0 ± 0.25	mm
Widths – width as cast (others on request)	20.0 ... 54.5 ± 0.5	mm

<sup>1</sup> Typical values, not part of a specification

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