

isovac high-perm 340-50 K HE

The specialist with highest permeability and shorter final annealing

Production in modern continuous annealing lines ensures that this semi-processed isovac® grade exhibits homogeneous mechanical and magnetic properties. High dimensional accuracy and defined degrees of roughness guarantee best punchability and further processing. In addition to low losses and high magnetizability, isovac HP 340-50 K HE (high-perm high-efficiency) is highly decarbonized in as-delivered condition, which means that the final annealing time at the customer can be significantly shortened. Subsequent annealing at the customer for the purpose of adjusting optimum magnetic properties completely eliminates any mechanical damage introduced to the material during the punching process.

Convincing advantages:

- » Potential cost savings through smaller component sizes for machinery and thus lower material usage while maintaining the same performance
- » Alternative increase in performance and efficiency as a result of high permeability and polarization (improved by up to 0.03 T at J25, J50, J100)
- » Shorter final annealing made possible by the low carbon content and thus reduced overall costs resulting from lower energy input
- » Best processability through consistent mechanical properties and homogeneous, clean surfaces with defined roughness
- » Excellent stackability resulting from high dimensional accuracy (thickness tolerance)

voestalpine supplies isovac HP 340-50 K HE, an electrical steel of the highest quality. We offer you a customer-focused overall package of products, service and logistics in addition to all the advantages of our integrated metallurgical facility and Steel Service Centers.

Grade named according to conventional international standards:

Grade named according to isovac®	DIN EN 10341		DIN EN 10126 DIN EN 10165	IEC/CEI 60404-8-3	ASTM A 683 M	ASTM A 683	AISI	IS15391
	Material No.	Abbreviation						
isovac HP 340-50 K HE	1.0841	M 340-50 K	M 340-50 E	340-50 K5	47S414M/441M	47S190	M-36/M-43	50-SP-340 E5

Mechanical properties:

Tensile test according to DIN EN ISO 6892-1 and hardness according to DIN EN ISO 6507-1 (Typical values);
Test direction: Transverse

Grade named according to isovac®	0.2 %-Yield strength R _{p0.2} [MPa]	Tensile strength R _m [MPa]	Elongation A ₈₀ [%]	Hardness HV5 [-]
isovac HP 340-50 K HE	360	450	20	170

Magnetic properties:

after final annealing according to EN10341 (Typical values);
Test direction: Mean value from longitudinal and transverse measurements at 50 Hz (60 Hz), single-sheet test

Grade named according to isovac®	Specific total loss				Magnetic polarization			Relative permeability 1.5 T μ _r
	1.0 T P10		1.5 T P15		2500 A/m J25	5000 A/m J50	10000 A/m J100	
	50 Hz [W/kg]	60 Hz [W/lb]	50 Hz [W/kg]	60 Hz [W/lb]	[T]	[T]	[T]	[-]
isovac HP 340-50 K HE	1.30	0.74	3.30	1.88	1.64	1.72	1.84	2800

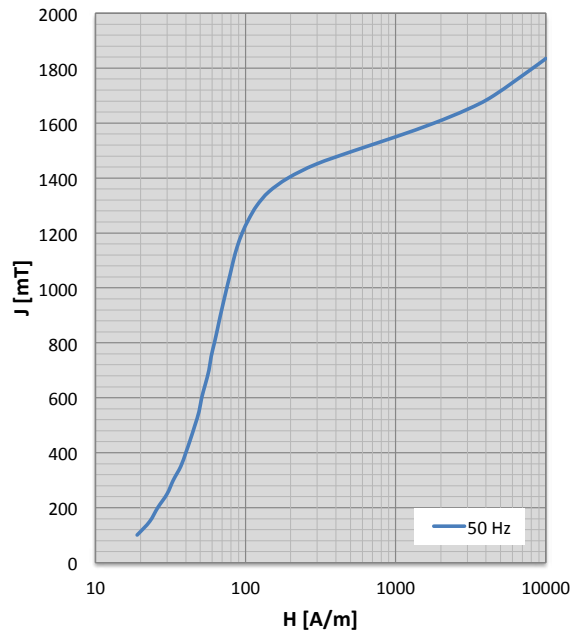
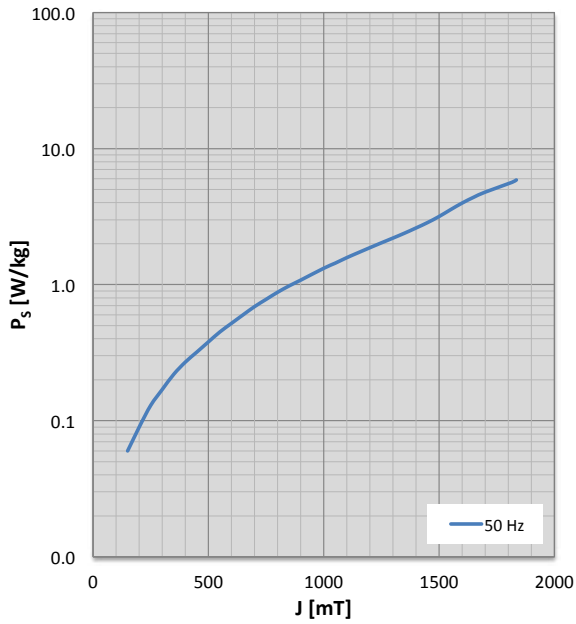
Physical properties:

Typical values

Grade named according to isovac®	Density ρ [g/cm³]	Specific electrical resistance ρ _s [μΩcm]	Thermal conductivity λ [W/mK]
isovac HP 340-50 K HE	7.80	28.0	41

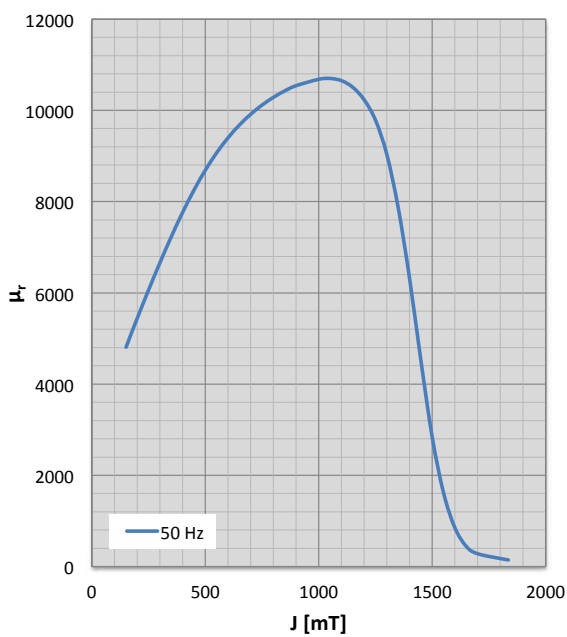
Characteristics P_s/J loss curve and characteristics J/H magnetization curve

Test direction: Mean value from longitudinal and transverse measurements at indicated frequencies, single-sheet test



Characteristics μ_r/J permeability curve

Test direction: Mean value from longitudinal and transverse measurements at 50 Hz, single-sheet test



Frequency dependence of magnetic properties

Test direction: Mean value longitudinal and transverse at indicated frequencies and polarizations, single-sheet test

— 50 Hz			
J [mT]	H [A/m]	P _s [W/kg]	μ _r [-]
100	19	0.02	4166
150	23	0.06	4809
200	26	0.09	5444
250	30	0.13	6064
300	33	0.17	6662
350	37	0.22	7231
400	40	0.27	7764
450	43	0.32	8252
500	46	0.38	8689
550	49	0.45	9070
600	51	0.52	9398
650	54	0.60	9678
700	57	0.69	9915
750	59	0.78	10116
800	62	0.88	10285
850	65	0.98	10427
900	68	1.08	10541
1000	75	1.32	10681
1050	79	1.44	10699
1100	83	1.58	10651
1150	88	1.72	10504
1200	95	1.87	10230
1250	105	2.03	9781
1300	119	2.20	9028
1350	143	2.39	7862
1400	192	2.61	6313
1450	294	2.86	4510
1500	532	3.17	2828
1550	1000	3.56	1609
1600	1804	3.98	845
1650	3005	4.39	442
1700	4496	4.79	281
1816	9000	5.65	161
1835	10000	5.88	146

Available Dimensions

Grade named according to isovac®	Delivery form	Width [mm]	Length [mm]
isovac HP 340-50 K HE	Wide strip / Slit strip	19 – 1560	-
	Cut-to-length sheets	300 – 1560	300 – 5000

The information and product properties contained in this printed material are non-binding and serve the sole purpose of technical orientation. They do not replace individual advisory services provided by our sales and customer service teams. The product information and characteristics set forth herein shall not be considered as guaranteed properties unless explicitly stipulated in a separate contractual agreement. For this reason, voestalpine shall not grant any warranty nor be held liable for properties and/or specifications other than those subject to explicit agreement. This also applies to the suitability and applicability of products for certain applications as well as to the further processing of materials into final products. All application risks and suitability risks shall be borne by the customer. The General Terms of Sale for Goods and Services of the voestalpine Steel Division shall apply to all materials supplied by the voestalpine Steel Division and can be accessed using the following link: www.voestalpine.com/stahl/en/The-Steel-Division/General-Terms-of-Sale

Technical changes are reserved. Errors and misprints are excepted. No part of this publication may be reprinted without explicit written permission by voestalpine Stahl GmbH.

Please find further information
and downloadable files at
www.voestalpine.com/isovac

