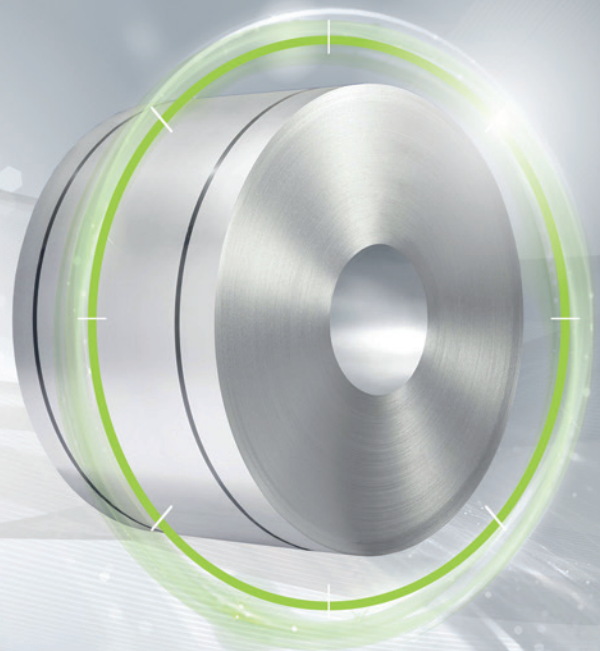


FULLY  
PROCESSED

## isovac 250-35 A HC

### The specialist with high thermal conductivity

Manufactured in the most modern production lines, this fully processed isovac® grade exhibits highly homogeneous properties across the width and length of the entire strip. The result is excellent and consistent processability in the manufacture of highly efficient electrical components.

The high thermal conductivity of isovac 250-35 A HC (high conductivity) ensures rapid heat dissipation in combination with higher polarization while maintaining low specific total losses. This makes innovative design strategies possible for electrical machinery.

Upon request, isovac 250-35 A HC can be supplied with an electrical steel insulation system and can be used directly in as-delivered condition.

#### **Convincing advantages:**

- » Potential cost savings in electric machinery based on lower component sizes and thus lower material usage based on higher polarization than that in standard isovac® grades
- » Lower cooling power necessary through higher thermal conductivity than that of standard isovac® grades (conductivity increased by up to 20%)
- » Best processability through consistent mechanical properties and homogeneous, clean surfaces
- » Excellent stackability resulting from high dimensional accuracy in rolling direction and perpendicular to rolling direction (thickness tolerance)
- » Innovative electrical steel insulation systems upon request

voestalpine supplies isovac 250-35 A HC, an electrical steel of the highest quality. We offer you a customer-focused over-all 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 10106		IEC 60404-8-4	JIS C2552	GOST 21427.2	ASTM A677	AISI	IS648	GB/T2521.1
	Material No.	Abbreviation							
isovac 250-35 A HC	1.0800	M250-35A	M250-35A 5	35A250	2413	36F145	M-15	35C250	35W250

**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®	Yield strength $R_{eH}$ [MPa]	0.2 %-Yield strength $R_{p0.2}$ [MPa]	Tensile strength $R_m$ [MPa]	Elongation $A_{80}$ [%]	Hardness HV5 [-]
isovac 250-35 A HC	355	340	480	25	160

**Magnetic properties:**

in as-delivered condition (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 $\mu_r$
	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 250-35 A HC	0.95	0.53	2.25	1.26	1.55	1.64	1.76	800

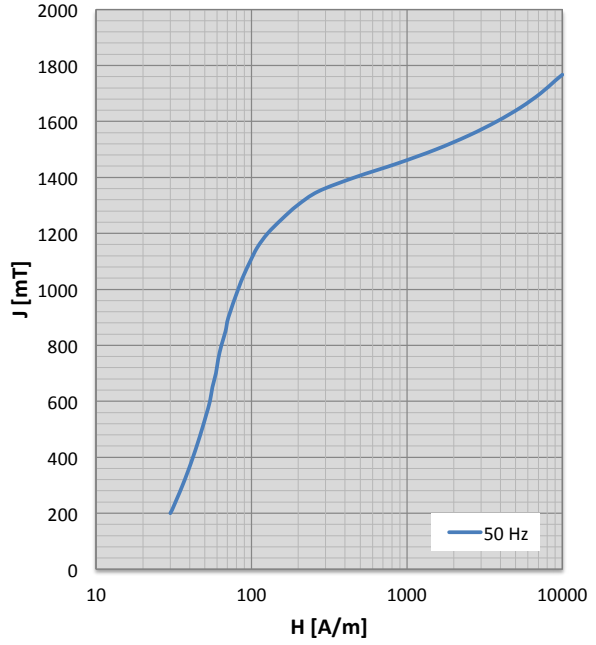
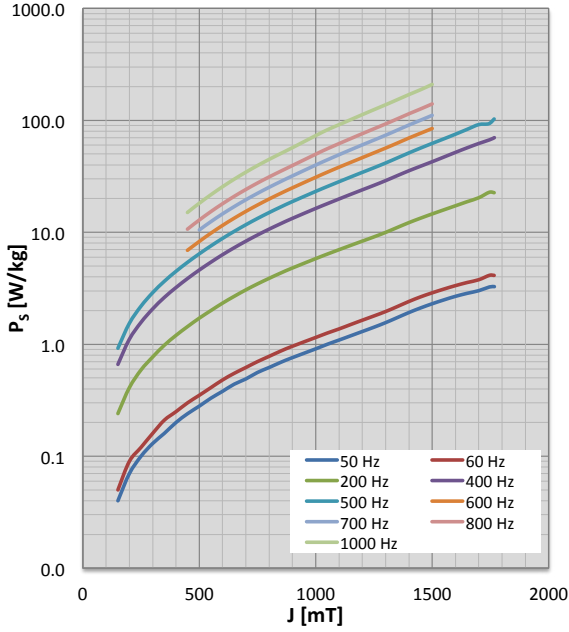
**Physical properties:**

Typical values

Grade named according to isovac®	Density $\rho$ [g/cm³]	Specific electrical resistance $\rho_s$ [ $\mu\Omega\text{cm}$ ]	Thermal conductivity $\lambda$ [W/mK]
isovac 250-35 A HC	7.68	52.0	25

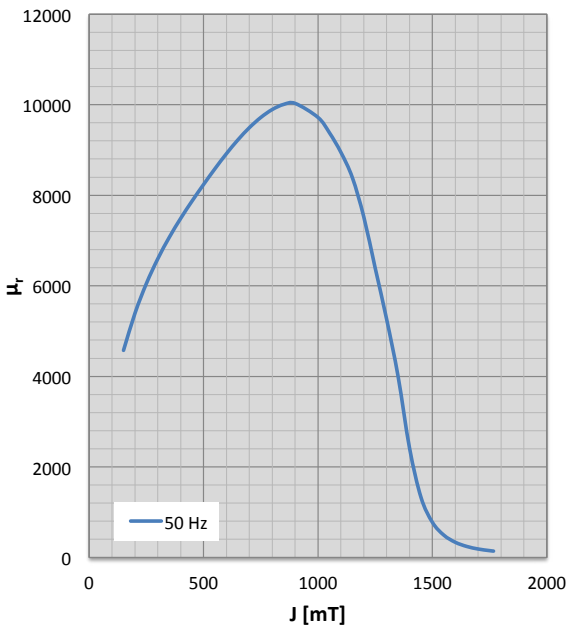
**Characteristics  $P_s/J$  loss curve and characteristics  $J/H$  magnetization curve**

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



**Characteristics  $\mu_r/J$  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				60 Hz				200 Hz			
J [mT]	H [A/m]	P <sub>s</sub> [W/kg]	μ <sub>r</sub> [-]	J [mT]	H [A/m]	P <sub>s</sub> [W/kg]	μ <sub>r</sub> [-]	J [mT]	H [A/m]	P <sub>s</sub> [W/kg]	μ <sub>r</sub> [-]
150	26	0.04	4572	150	26	0.05	4546	150	28	0.24	4236
200	30	0.07	5393	200	30	0.09	5345	200	33	0.41	4858
250	33	0.10	6051	250	33	0.12	5983	250	37	0.59	5336
300	36	0.13	6599	300	37	0.16	6512	300	42	0.77	5723
350	39	0.16	7071	350	40	0.21	6965	350	46	0.98	6052
400	42	0.20	7491	400	43	0.25	7368	400	50	1.20	6345
450	45	0.24	7876	450	46	0.30	7736	450	54	1.44	6615
500	48	0.28	8239	500	49	0.35	8084	500	58	1.71	6873
550	51	0.33	8589	550	52	0.41	8417	550	61	2.00	7127
600	54	0.38	8920	600	55	0.48	8734	600	65	2.33	7373
650	56	0.44	9224	650	57	0.55	9028	650	68	2.68	7606
700	59	0.49	9493	700	60	0.62	9292	700	71	3.06	7822
750	61	0.56	9719	750	63	0.70	9520	750	74	3.46	8016
800	64	0.62	9894	800	66	0.78	9705	800	78	3.88	8182
850	68	0.69	10007	850	69	0.87	9836	850	81	4.33	8315
900	71	0.76	10029	900	72	0.96	9881	900	85	4.80	8401
1000	82	0.91	9719	1000	83	1.15	9609	1000	95	5.82	8396
1050	89	1.00	9380	1050	90	1.26	9283	1050	101	6.39	8297
1100	98	1.09	8948	1100	99	1.37	8867	1100	107	6.99	8158
1150	109	1.19	8391	1150	110	1.50	8337	1150	115	7.64	7932
1200	127	1.30	7523	1200	127	1.64	7503	1200	130	8.34	7356
1250	156	1.42	6389	1250	155	1.79	6399	1250	156	9.10	6388
1300	197	1.56	5259	1300	196	1.96	5284	1300	195	9.98	5310
1350	269	1.73	3997	1350	267	2.17	4020	1350	266	11.04	4039
1400	461	1.92	2415	1400	460	2.41	2422	1400	459	12.20	2425
1450	869	2.11	1328	1450	869	2.65	1328	1450	870	13.37	1326
1500	1538	2.30	776	1500	1539	2.88	775	1500	1545	14.59	773
1550	2502	2.49	493	1550	2502	3.11	493	1550	2515	15.87	490
1600	3786	2.68	336	1600	3786	3.34	336	1600	3807	17.25	334
1650	5391	2.85	244	1650	5395	3.56	243	1650	5423	18.76	242
1700	7225	3.01	187	1700	7237	3.77	187	1700	7269	20.35	186
1746	9000	3.25	154	1746	9000	4.13	154	1745	9000	22.77	154
1767	10000	3.27	141	1766	10000	4.12	141	1766	10000	22.57	141

**Frequency dependence of magnetic properties**

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

400 Hz				500 Hz				600 Hz			
J [mT]	H [A/m]	P <sub>s</sub> [W/kg]	μ <sub>r</sub> [-]	J [mT]	H [A/m]	P <sub>s</sub> [W/kg]	μ <sub>r</sub> [-]	J [mT]	H [A/m]	P <sub>s</sub> [W/kg]	μ <sub>r</sub> [-]
100	26	0.22	3118	100	27	0.31	2959				
150	31	0.66	3792	150	33	0.92	3570				
200	37	1.11	4257	200	40	1.54	3985				
250	43	1.57	4603	250	46	2.19	4290				
300	49	2.07	4878	300	53	2.89	4531				
350	55	2.62	5110	350	59	3.65	4732				
400	60	3.21	5316	400	65	4.48	4909	400	68	5.56	4663
450	65	3.87	5507	450	71	5.40	5072	450	74	6.88	4863
500	70	4.60	5693	500	76	6.42	5228	500	79	8.28	5031
550	74	5.41	5877	550	81	7.56	5381	550	85	9.82	5170
600	79	6.31	6054	600	86	8.82	5528	600	90	11.52	5283
650	83	7.28	6220	650	91	10.19	5662	650	96	13.37	5372
700	87	8.33	6369	700	96	11.68	5780	700	102	15.37	5438
750	92	9.46	6495	750	102	13.29	5876	750	109	17.52	5483
800	97	10.67	6593	800	107	15.01	5948	800	116	19.83	5509
850	102	11.95	6662	850	113	16.85	5993	850	123	22.30	5517
900	107	13.32	6701	900	119	18.82	6011	900	130	24.95	5505
1000	119	16.34	6704	1000	133	23.20	5969	1000	147	31.00	5419
1050	125	18.02	6671	1050	141	25.65	5919	1050	156	34.45	5349
1100	133	19.84	6606	1100	149	28.30	5881	1100	166	38.15	5267
1150	141	21.82	6484	1150	157	31.19	5847	1150	177	42.11	5179
1200	153	23.95	6234	1200	168	34.31	5678	1200	187	46.43	5093
1250	172	26.27	5795	1250	188	37.71	5295	1250	201	51.24	4950
1300	202	28.93	5133	1300	216	41.59	4785	1300	230	56.52	4490
1350	266	32.05	4045	1350	273	46.13	3935	1350	281	62.60	3822
1400	455	35.44	2447	1400	459	51.17	2428	1400	456	69.50	2441
1450	866	38.92	1332	1450	880	56.53	1312	1450	895	76.65	1289
1500	1543	42.69	774	1500	1583	62.22	754	1500	1540	84.49	775
1550	2516	46.98	490	1550	2597	68.33	475				
1600	3809	51.74	334	1600	3919	75.21	325				
1650	5421	56.82	242	1650	5524	83.06	238				
1700	7261	62.11	186	1700	7327	91.63	185				
1746	9000	66.93	154	1743	9000	93.22	154				
1767	10000	70.02	141	1766	10000	102.79	141				



Available Dimensions

Grade named according to isovac®	Delivery form	Width [mm]	Length [mm]
isovac 250-35 A HC	Wide strip / Slit strip	19 – 1420	-
	Cut-to-length sheets	300 – 1420	300 – 5000

Deliverable coating systems

Grade named according to isovac®	Uncoated	C-3	Backlack	C-5	C-6
isovac 250-35 A HC	✔	✔	☰	✔	✔

✔ Available ☰ On request

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