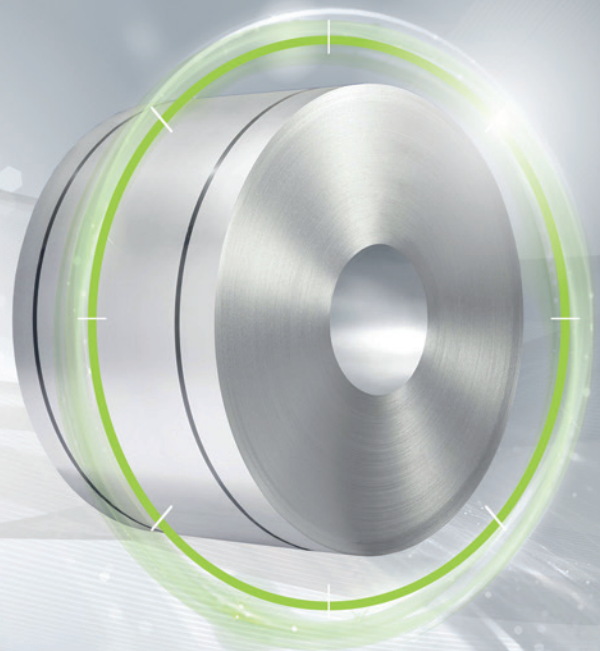


FULLY  
PROCESSED

## isovac 800-65 A HF

### The specialist for high frequencies

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 use of isovac 800-65 A HF (high-frequency) guarantees optimum utilization of the machinery at higher frequencies. High-precision adjustment of the microstructure and adaptation of the alloy content make it possible to keep losses low in the high-frequency range. isovac 800-65 A HF is additionally characterized by slightly higher strengths. Upon request, isovac 800-65 A HF can be supplied with an electrical steel insulation system and can be used directly in as-delivered condition.

#### Convincing advantages:

- » Use in high-speed motors because of low losses at high frequencies (up to 10% at 1.5 T and 400/1000 Hz)
- » Larger freedom of design and component size optimization resulting from higher strengths as compared to standard isovac® grades
- » 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 800-65 A HF, 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 10106		IEC 60404-8-4	JIS C2552	GOST 21427.2	ASTM A677	AISI	IS648	GB/T2521.1
	Material No.	Abbreviation							
isovac 800-65 A HF	1.0827	M800-65A	M800-65A 5	65A800	2122	64F500	M-47	65C800	65W800

**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	0.2 %-Yield strength	Tensile strength	Elongation	Hardness
	R <sub>eH</sub> [MPa]	R <sub>p0.2</sub> [MPa]	R <sub>m</sub> [MPa]	A <sub>80</sub> [%]	HV5 [-]
isovac 800-65 A HF	350	315	440	35	140

**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 μ <sub>r</sub>
	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 800-65 A HF	2.50	1.48	5.50	3.25	1.65	1.73	1.85	2500

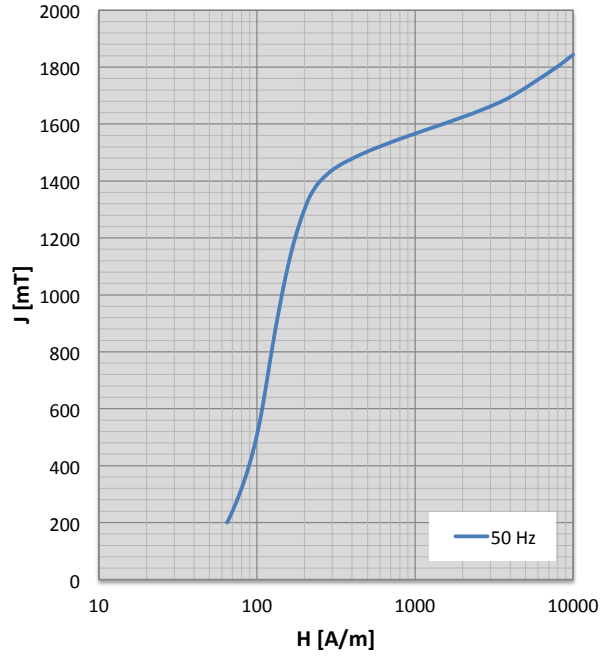
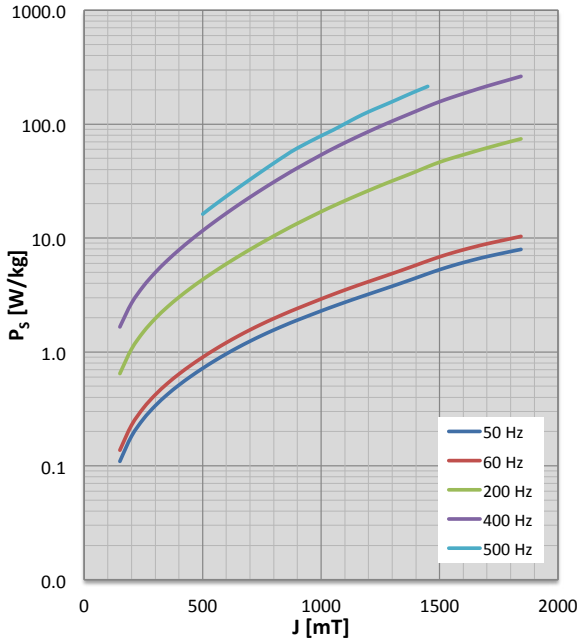
**Physical properties:**

Typical values

Grade named according to isovac®	Density ρ [g/cm³]	Specific electrical resistance ρ <sub>s</sub> [μΩcm]	Thermal conductivity λ [W/mK]
isovac 800-65 A HF	7.78	31.1	36

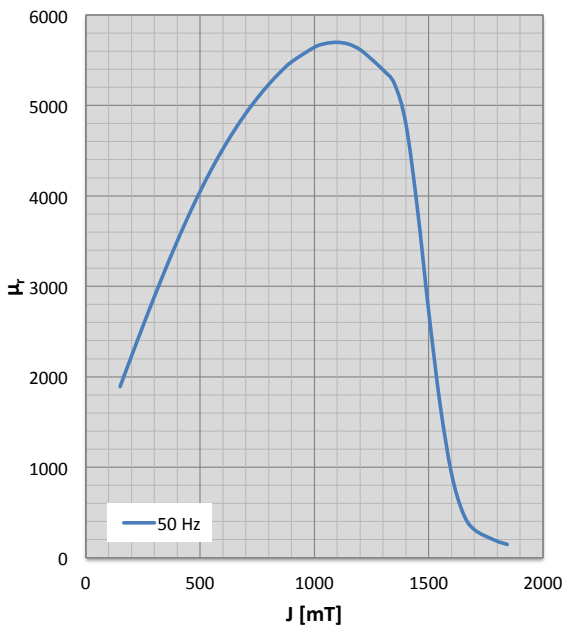
**Characteristics  $P_s/J$  loss curve and characteristics  $J/H$  magnetization curve**

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> [-]
				100	52	0.05	1549	100	56	0.24	1429
150	58	0.11	1893	150	59	0.14	1877	150	65	0.64	1688
200	65	0.18	2230	200	66	0.23	2202	200	74	1.06	1942
250	71	0.26	2562	250	72	0.32	2522	250	83	1.50	2188
300	77	0.34	2886	300	79	0.42	2833	300	92	1.96	2422
350	83	0.42	3199	350	85	0.53	3134	350	101	2.47	2639
400	89	0.51	3500	400	91	0.64	3422	400	110	3.02	2835
450	94	0.61	3784	450	97	0.76	3693	450	118	3.64	3006
500	99	0.72	4050	500	102	0.90	3945	500	127	4.32	3148
550	104	0.83	4295	550	107	1.05	4176	550	136	5.08	3257
600	108	0.96	4520	600	111	1.21	4386	600	145	5.93	3336
650	112	1.10	4725	650	115	1.38	4576	650	155	6.87	3386
700	116	1.24	4912	700	119	1.56	4747	700	165	7.93	3409
750	120	1.40	5080	750	124	1.76	4900	750	177	9.11	3408
800	124	1.56	5232	800	128	1.96	5035	800	189	10.41	3386
850	128	1.73	5366	850	133	2.18	5153	850	204	11.85	3344
900	133	1.90	5481	900	138	2.41	5251	900	219	13.43	3289
1000	144	2.29	5643	1000	150	2.92	5378	1000	253	17.03	3158
1050	150	2.50	5685	1050	157	3.20	5402	1050	271	19.06	3092
1100	157	2.72	5697	1100	165	3.50	5401	1100	289	21.24	3028
1150	165	2.96	5677	1150	173	3.81	5377	1150	309	23.57	2967
1200	174	3.21	5616	1200	183	4.14	5317	1200	329	26.09	2905
1250	186	3.48	5511	1250	194	4.49	5214	1250	349	28.82	2842
1300	200	3.77	5392	1300	209	4.87	5089	1300	372	31.73	2781
1350	218	4.10	5240	1350	228	5.30	4924	1350	398	34.81	2724
1400	252	4.46	4799	1400	261	5.77	4522	1400	419	38.29	2657
1450	322	4.86	3870	1450	326	6.30	3725	1450	444	42.30	2533
1500	484	5.28	2722	1500	485	6.84	2707	1500	553	46.39	2201
1550	822	5.69	1692	1550	824	7.37	1713	1550	861	50.14	1571
1600	1502	6.09	927	1600	1499	7.88	932	1600	1523	53.81	915
1650	2649	6.48	495	1650	2623	8.39	489	1650	2650	57.71	511
1700	4149	6.87	310	1700	4082	8.90	305	1700	4124	61.83	325
1792	7500	7.56	190	1792	7500	9.79	190	1791	7500	69.69	190
1844	10000	7.95	147	1840	10000	10.34	146	1841	10000	74.21	147

**Frequency dependence of magnetic properties**

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

400 Hz				500 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> [-]
100	64	0.67	1251				
150	75	1.66	1456				
200	86	2.68	1655				
250	97	3.78	1845				
300	108	4.98	2020				
350	121	6.33	2175				
400	133	7.85	2305				
450	147	9.60	2406	450	162	13.33	2219
500	162	11.59	2471	500	179	16.22	2229
550	178	13.88	2498	550	198	19.48	2216
600	195	16.49	2491	600	219	23.23	2182
650	214	19.47	2459	650	243	27.59	2131
700	234	22.85	2406	700	270	32.66	2067
750	257	26.68	2340	750	300	38.55	1994
800	282	30.99	2267	800	332	45.37	1917
850	309	35.82	2193	850	368	53.16	1840
900	338	41.19	2120	900	405	61.60	1769
1000	402	53.70	1979	1000	478	78.94	1666
1050	437	60.88	1913	1050	515	88.60	1623
1100	473	68.64	1851	1100	561	100.64	1562
1150	510	76.99	1793	1150	611	114.31	1499
1200	549	86.01	1741	1200	660	128.29	1447
1250	588	95.79	1691	1250	706	142.19	1408
1300	631	106.27	1639	1300	754	157.44	1373
1350	678	117.44	1582	1350	808	175.12	1330
1400	721	129.71	1545	1400	868	194.29	1284
1450	760	143.33	1531	1450	934	214.40	1236
1500	824	157.43	1448	1500	1005	237.92	1188
1550	995	171.22	1216				
1600	1514	185.21	920				
1650	2579	200.06	662				
1700	4063	215.59	445				
1792	7500	244.76	190				
1842	10000	262.75	147				

### Available Dimensions

Grade named according to isovac®	Delivery form	Width [mm]	Length [mm]
isovac 800-65 A HF	Wide strip / Slit strip	19 – 1590	-
	Cut-to-length sheets	300 – 1590	300 – 5000

### Deliverable coating systems

Grade named according to isovac®	Uncoated	C-3	Backlack	C-5	C-6
isovac 800-65 A HF	✔	✔	☰	✔	✔

✔ Available ☰ On request

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](http://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](http://www.voestalpine.com/isovac)

