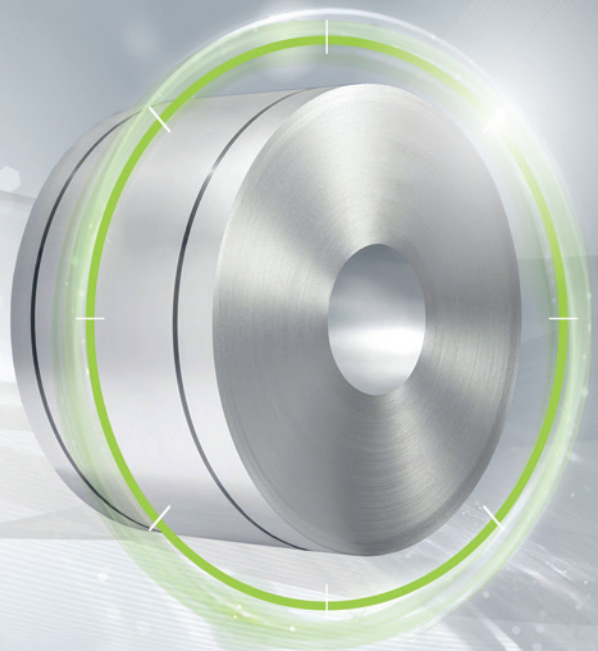


FULLY
PROCESSED

isovac 600-50 A

The perfect solution for direct application

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. Upon request, isovac 600-50 A can be supplied with an electrical steel insulation system and can be used directly in as-delivered condition.

Convincing advantages:

- » 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 600-50 A, 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 600-50 A	1.0814	M600-50A	M600-50A 5	50A600	2112	-	-	50C600	50W600

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 _{eH} [MPa]	R _{p0.2} [MPa]	R _m [MPa]	A ₈₀ [%]	HV5 [-]
isovac 600-50 A	335	310	450	35	135

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
	1.0 T P10		1.5 T P15		2500 A/m J25	5000 A/m J50	10000 A/m J100	1.5 T μ _r
	50 Hz [W/kg]	60 Hz [W/lb]	50 Hz [W/kg]	60 Hz [W/lb]	[T]	[T]	[T]	[-]
isovac 600-50 A	2.20	1.25	4.80	2.74	1.64	1.72	1.84	2500

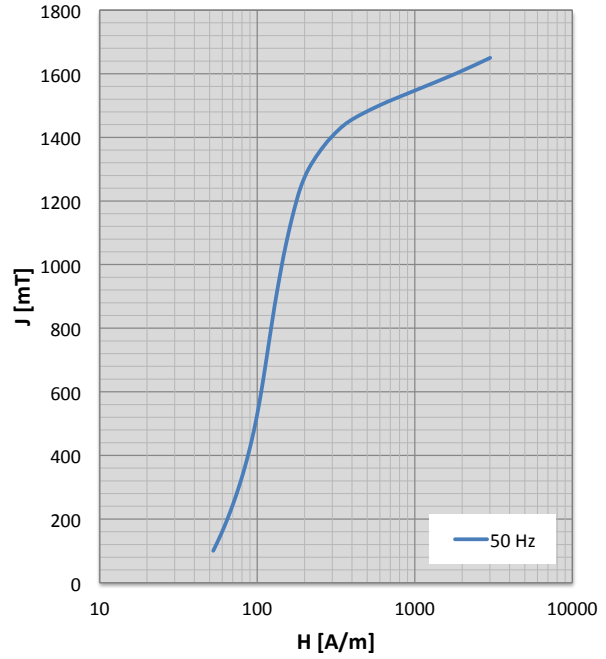
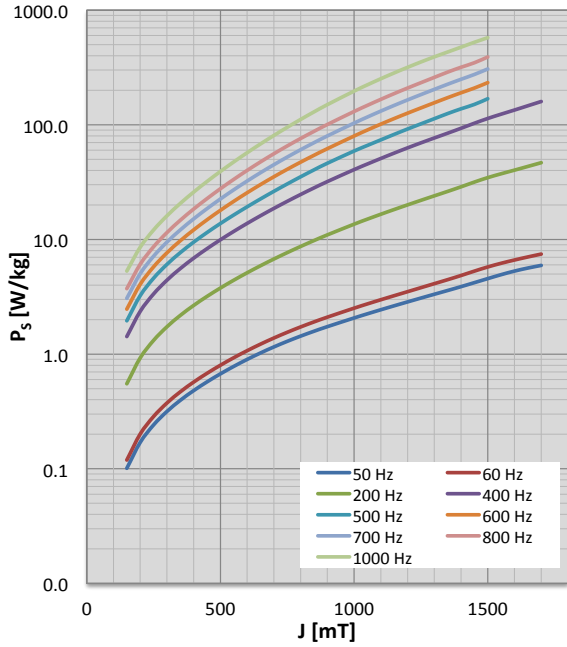
Physical properties:

Typical values

Grade named according to isovac®	Density ρ [g/cm³]	Specific electrical resistance ρ _s [μΩcm]	Thermal conductivity λ [W/mK]
isovac 600-50 A	7.78	31.1	36

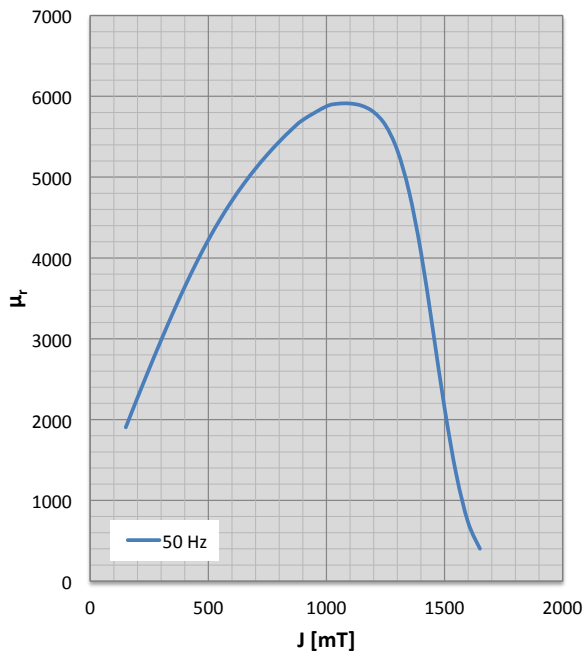
Characteristics P_s/J loss curve and characteristics J/H magnetization curve

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



Characteristics 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				60 Hz				200 Hz			
J [mT]	H [A/m]	P _s [W/kg]	μ _r [-]	J [mT]	H [A/m]	P _s [W/kg]	μ _r [-]	J [mT]	H [A/m]	P _s [W/kg]	μ _r [-]
100	53	0.03	1534					100	54	0.18	1491
150	59	0.10	1904	150	59	0.12	1890	150	63	0.55	1772
200	65	0.17	2272	200	66	0.20	2237	200	71	0.93	2049
250	71	0.24	2632	250	72	0.29	2579	250	79	1.32	2320
300	76	0.32	2983	300	78	0.37	2914	300	87	1.73	2581
350	82	0.40	3321	350	84	0.47	3239	350	95	2.18	2829
400	87	0.48	3643	400	90	0.57	3553	400	103	2.66	3061
450	93	0.57	3945	450	95	0.68	3852	450	110	3.19	3274
500	97	0.67	4224	500	100	0.80	4135	500	117	3.77	3463
550	102	0.78	4478	550	104	0.93	4399	550	124	4.41	3627
600	106	0.90	4708	600	108	1.07	4643	600	131	5.12	3765
650	110	1.02	4917	650	112	1.22	4868	650	138	5.90	3877
700	114	1.16	5107	700	115	1.38	5074	700	145	6.75	3964
750	118	1.29	5280	750	119	1.55	5259	750	152	7.68	4025
800	123	1.44	5438	800	123	1.73	5425	800	161	8.69	4060
850	127	1.58	5583	850	128	1.91	5570	850	170	9.78	4071
900	132	1.74	5708	900	132	2.10	5695	900	180	10.96	4062
1000	144	2.07	5876	1000	144	2.52	5880	1000	202	13.59	4006
1050	150	2.25	5909	1050	150	2.74	5938	1050	213	15.04	3969
1100	158	2.44	5911	1100	157	2.98	5964	1100	225	16.59	3926
1150	167	2.64	5883	1150	166	3.23	5952	1150	238	18.24	3878
1200	178	2.85	5805	1200	175	3.50	5925	1200	251	20.02	3831
1250	191	3.08	5642	1250	186	3.80	5877	1250	263	21.94	3784
1300	212	3.33	5332	1300	203	4.12	5685	1300	279	24.00	3721
1350	245	3.59	4818	1350	232	4.46	5219	1350	305	26.24	3604
1400	295	3.88	4075	1400	280	4.85	4424	1400	336	28.77	3352
1450	383	4.20	3126	1450	368	5.29	3327	1450	392	31.65	2889
1500	594	4.56	2145	1500	586	5.76	2198	1500	582	34.61	2221
1550	1033	4.93	1318	1550	1041	6.20	1310	1550	1035	37.39	1414
1600	1815	5.30	727	1600	1857	6.62	714	1600	1863	40.22	713
1650	3009	5.63	401	1650	3113	7.04	390	1650	3128	43.34	332
1700	4504	5.94	268	1700	4694	7.45	257	1700	4714	46.70	211

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 _s [W/kg]	μ _r [-]	J [mT]	H [A/m]	P _s [W/kg]	μ _r [-]	J [mT]	H [A/m]	P _s [W/kg]	μ _r [-]
				100	62	0.71	1292	100	64	0.93	1246
150	69	1.42	1602	150	72	1.95	1511	150	75	2.47	1449
200	79	2.36	1829	200	83	3.24	1726	200	86	4.06	1648
250	89	3.35	2048	250	94	4.59	1931	250	98	5.77	1836
300	100	4.41	2253	300	105	6.06	2122	300	109	7.64	2010
350	110	5.58	2440	350	116	7.68	2293	350	122	9.74	2163
400	120	6.87	2606	400	128	9.48	2440	400	135	12.12	2291
450	131	8.31	2745	450	140	11.50	2558	450	149	14.84	2389
500	142	9.93	2854	500	153	13.78	2642	500	164	17.95	2452
550	153	11.76	2929	550	166	16.35	2689	550	181	21.51	2478
600	165	13.81	2972	600	181	19.26	2702	600	198	25.55	2470
650	177	16.10	2988	650	196	22.56	2689	650	217	30.10	2436
700	191	18.66	2980	700	213	26.28	2653	700	238	35.21	2385
750	205	21.50	2953	750	232	30.48	2601	750	260	40.90	2322
800	222	24.66	2909	800	253	35.19	2538	800	283	47.22	2256
850	240	28.14	2852	850	275	40.44	2470	850	309	54.19	2192
900	259	31.96	2788	900	299	46.20	2401	900	336	61.89	2130
1000	301	40.64	2654	1000	350	59.04	2276	1000	397	79.79	2008
1050	323	45.53	2591	1050	376	66.11	2224	1050	430	90.12	1947
1100	347	50.84	2530	1100	404	73.86	2171	1100	464	101.31	1887
1150	372	56.65	2468	1150	434	82.48	2111	1150	500	113.34	1832
1200	397	62.90	2408	1200	466	91.85	2052	1200	537	126.27	1780
1250	421	69.57	2351	1250	497	101.89	1999	1250	575	140.26	1729
1300	452	76.71	2293	1300	534	112.98	1938	1300	616	155.58	1679
1350	490	84.47	2231	1350	579	125.28	1866	1350	660	172.38	1629
1400	513	93.23	2173	1400	610	137.79	1828	1400	705	190.14	1580
1450	525	103.16	2096	1450	621	150.52	1830	1450	753	209.13	1532
1500	659	113.55	1835	1500	717	168.73	1667	1500	812	233.19	1471
1550	1073	123.75	1285								
1600	1878	134.49	705								
1650	3135	146.53	367								
1700	4722	159.61	240								

Available Dimensions

Grade named according to isovac®	Delivery form	Width [mm]	Length [mm]
isovac 600-50 A	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 600-50 A	✔	✔	☰	✔	✔

✔ Available ☰ On request

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