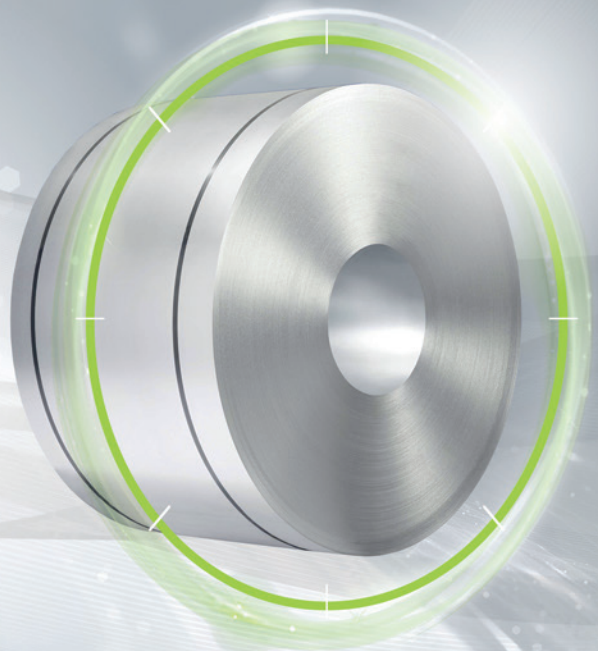


FULLY
PROCESSED

isovac 530-50 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 530-50 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 530-50 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 530-50 A	1.0813	M530-50A	M530-50A 5	50A530	2212	-	M-45	50C530	50W540

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 530-50 A	330	305	445	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 530-50 A	2.00	1.14	4.50	2.57	1.64	1.73	1.84	2500

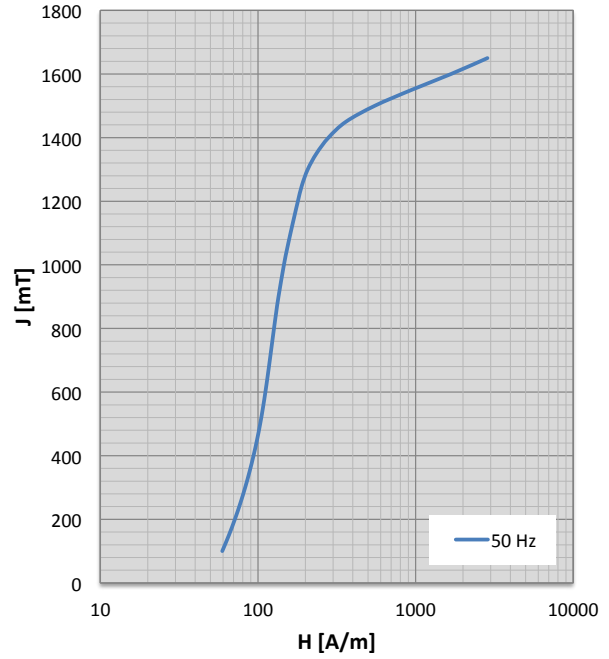
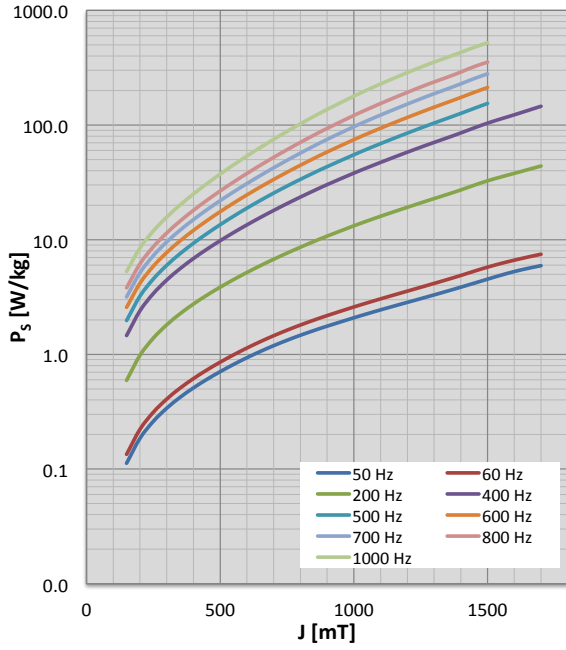
Physical properties:

Typical values

Grade named according to isovac®	Density ρ [g/cm³]	Specific electrical resistance ρ _s [μΩcm]	Thermal conductivity λ [W/mK]
isovac 530-50 A	7.78	31.1	36

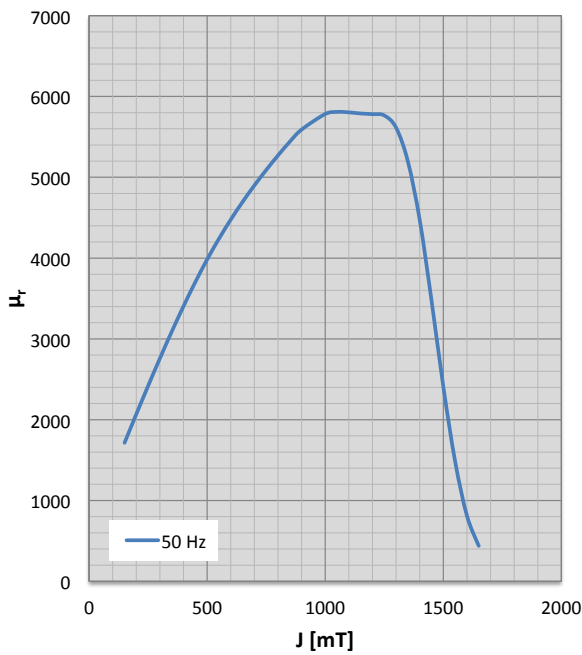
Characteristics P_s/J loss curve and characteristics J/H magnetization curve

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	59	0.04	1355	100	59	0.05	1370	100	62	0.21	1306
150	65	0.11	1714	150	66	0.13	1707	150	70	0.59	1590
200	71	0.19	2069	200	72	0.22	2042	200	78	0.98	1871
250	77	0.26	2419	250	78	0.31	2373	250	86	1.39	2147
300	83	0.34	2760	300	85	0.41	2697	300	93	1.81	2414
350	88	0.42	3090	350	90	0.51	3014	350	101	2.26	2671
400	94	0.51	3406	400	96	0.61	3321	400	108	2.75	2915
450	99	0.60	3704	450	101	0.73	3616	450	115	3.28	3141
500	103	0.71	3983	500	106	0.86	3896	500	121	3.86	3349
550	107	0.82	4240	550	110	0.99	4161	550	128	4.49	3536
600	111	0.94	4477	600	114	1.14	4409	600	133	5.18	3700
650	115	1.06	4696	650	117	1.29	4641	650	139	5.93	3841
700	119	1.19	4899	700	121	1.45	4857	700	145	6.75	3958
750	123	1.33	5090	750	124	1.63	5055	750	152	7.64	4050
800	126	1.47	5271	800	128	1.80	5237	800	159	8.60	4117
850	130	1.61	5440	850	132	1.99	5400	850	167	9.64	4159
900	135	1.76	5590	900	137	2.18	5543	900	175	10.75	4178
1000	146	2.09	5783	1000	147	2.59	5751	1000	195	13.22	4168
1050	153	2.26	5809	1050	153	2.81	5810	1050	205	14.57	4145
1100	161	2.44	5804	1100	161	3.05	5842	1100	216	16.01	4116
1150	170	2.64	5789	1150	169	3.30	5852	1150	227	17.54	4082
1200	179	2.84	5782	1200	178	3.56	5847	1200	239	19.18	4041
1250	190	3.06	5765	1250	189	3.85	5814	1250	251	20.94	3990
1300	207	3.30	5614	1300	205	4.16	5654	1300	267	22.83	3906
1350	235	3.56	5196	1350	232	4.50	5255	1350	293	24.86	3762
1400	280	3.86	4473	1400	276	4.88	4547	1400	325	27.18	3508
1450	362	4.18	3477	1450	358	5.31	3527	1450	378	29.86	3089
1500	551	4.53	2409	1500	547	5.76	2424	1500	542	32.63	2449
1550	943	4.90	1485	1550	935	6.20	1491	1550	927	35.25	1599
1600	1679	5.28	813	1600	1659	6.63	823	1600	1661	37.90	823
1650	2857	5.62	439	1650	2816	7.05	450	1650	2829	40.80	391
1700	4360	5.94	284	1700	4295	7.47	291	1700	4320	43.93	243

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	66	0.75	1222	100	68	1.01	1169
150	73	1.46	1512	150	76	1.97	1446	150	79	2.57	1383
200	83	2.40	1748	200	87	3.22	1667	200	90	4.17	1591
250	93	3.39	1976	250	97	4.55	1878	250	102	5.88	1791
300	102	4.45	2192	300	108	5.98	2076	300	113	7.73	1976
350	112	5.60	2393	350	119	7.56	2257	350	125	9.77	2143
400	122	6.86	2575	400	130	9.31	2416	400	137	12.06	2287
450	132	8.25	2734	450	141	11.29	2550	450	150	14.63	2404
500	141	9.80	2865	500	153	13.51	2652	500	163	17.55	2488
550	151	11.54	2966	550	165	16.03	2721	550	177	20.86	2536
600	161	13.47	3039	600	178	18.85	2760	600	192	24.59	2554
650	172	15.62	3085	650	191	22.00	2772	650	208	28.80	2545
700	183	18.00	3106	700	206	25.49	2763	700	226	33.51	2516
750	196	20.64	3105	750	222	29.36	2735	750	245	38.77	2472
800	209	23.54	3084	800	239	33.61	2694	800	265	44.61	2418
850	225	26.74	3045	850	258	38.27	2644	850	288	51.08	2359
900	242	30.22	2994	900	279	43.37	2587	900	313	58.21	2298
1000	278	38.08	2877	1000	324	55.06	2467	1000	366	74.55	2177
1050	297	42.48	2822	1050	347	61.71	2410	1050	395	83.82	2120
1100	317	47.23	2767	1100	372	68.90	2354	1100	424	93.86	2065
1150	339	52.39	2709	1150	399	76.64	2298	1150	456	104.70	2010
1200	361	57.99	2649	1200	426	85.04	2244	1200	488	116.46	1957
1250	384	64.06	2589	1250	453	94.19	2191	1250	521	129.24	1907
1300	409	70.55	2532	1300	486	104.04	2131	1300	559	142.95	1853
1350	439	77.49	2477	1350	526	114.61	2061	1350	601	157.65	1792
1400	463	85.33	2409	1400	552	126.38	2019	1400	637	174.07	1750
1450	490	94.40	2288	1450	563	139.74	2001	1450	663	192.72	1730
1500	617	103.89	1980	1500	667	154.29	1795	1500	731	212.54	1633
1550	965	113.12	1408								
1600	1677	122.81	816								
1650	2846	133.78	455								
1700	4354	145.78	296								

Frequency dependence of magnetic properties

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

700 Hz				800 Hz				1000 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 [-]
150	82	3.17	1345	150	84	3.81	1295	150	91	5.27	1198
200	93	5.15	1540	200	97	6.16	1477	200	104	8.47	1362
250	105	7.26	1725	250	109	8.68	1651	250	118	11.92	1516
300	117	9.56	1896	300	122	11.44	1810	300	132	15.75	1657
350	130	12.11	2049	350	136	14.54	1952	350	148	20.08	1780
400	143	14.97	2179	400	150	18.04	2070	400	164	25.04	1879
450	157	18.22	2281	450	166	22.04	2160	450	183	30.76	1951
500	172	21.91	2350	500	182	26.61	2218	500	203	37.36	1991
550	188	26.10	2385	550	200	31.83	2242	550	225	44.96	1997
600	205	30.87	2388	600	219	37.80	2234	600	249	53.69	1972
650	224	36.27	2365	650	240	44.58	2203	650	275	63.68	1926
700	244	42.37	2324	700	263	52.26	2153	700	304	75.06	1864
750	266	49.24	2269	750	288	60.92	2092	750	336	87.95	1794
800	290	56.94	2206	800	316	70.64	2026	800	370	102.47	1724
850	317	65.52	2141	850	346	81.49	1960	850	408	118.75	1658
900	346	75.01	2076	900	378	93.52	1895	900	448	136.83	1598
1000	408	96.73	1953	1000	449	121.25	1774	1000	534	178.62	1492
1050	441	108.98	1898	1050	486	137.01	1720	1050	579	202.42	1443
1100	475	122.25	1846	1100	525	154.10	1668	1100	626	228.25	1398
1150	510	136.63	1794	1150	566	172.59	1618	1150	676	256.20	1354
1200	548	152.31	1742	1200	609	192.71	1569	1200	727	286.55	1314
1250	588	169.38	1692	1250	653	214.55	1523	1250	780	319.36	1275
1300	629	187.54	1644	1300	699	237.49	1480	1300	837	353.89	1236
1350	672	206.78	1598	1350	747	261.49	1438	1350	898	389.88	1197
1400	719	228.71	1549	1400	799	289.65	1394	1400	963	430.02	1157
1450	773	254.18	1494	1450	857	323.29	1347	1450	1033	475.96	1118
1500	826	279.35	1445	1500	918	353.38	1301	1500	1102	521.83	1084

Available Dimensions

Grade named according to isovac®	Delivery form	Width [mm]	Length [mm]
isovac 530-50 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 530-50 A	✔	✔	☰	✔	✔

✔ Available ☰ On request

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