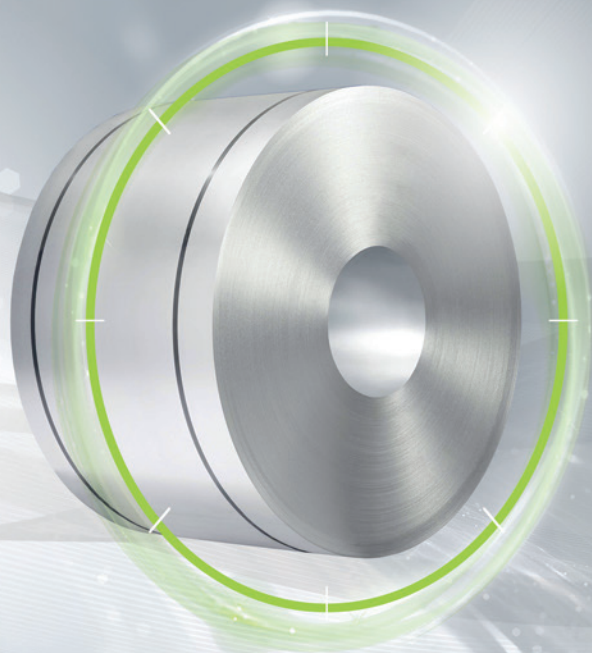


FULLY  
PROCESSED

## isovac 270-35 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 270-35 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 270-35 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 270-35 A	1.0801	M270-35A	M270-35A 5	35A270	2412	36F155	M-19	35C270	35W270

**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 270-35 A	365	355	490	25	165

**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 <sub>r</sub>
	50 Hz [W/kg]	60 Hz [W/lb]	50 Hz [W/kg]	60 Hz [W/lb]	[T]	[T]	[T]	[-]
isovac 270-35 A	0.95	0.53	2.35	1.32	1.55	1.64	1.77	900

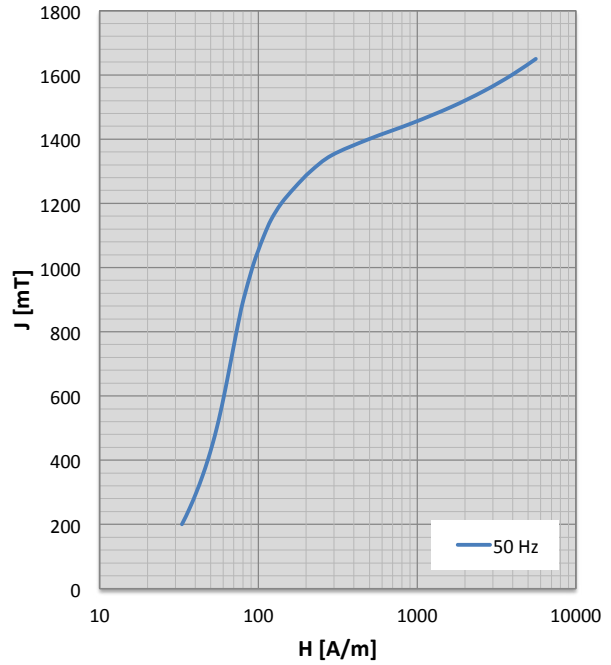
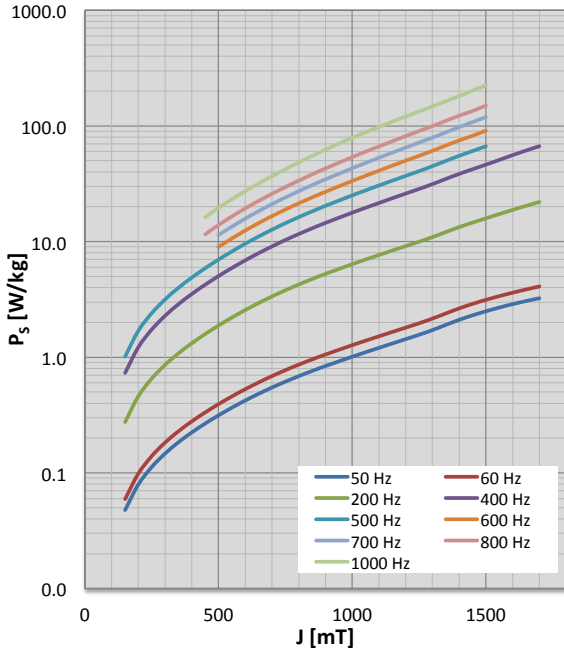
**Physical properties:**

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 270-35 A	7.68	52.0	25

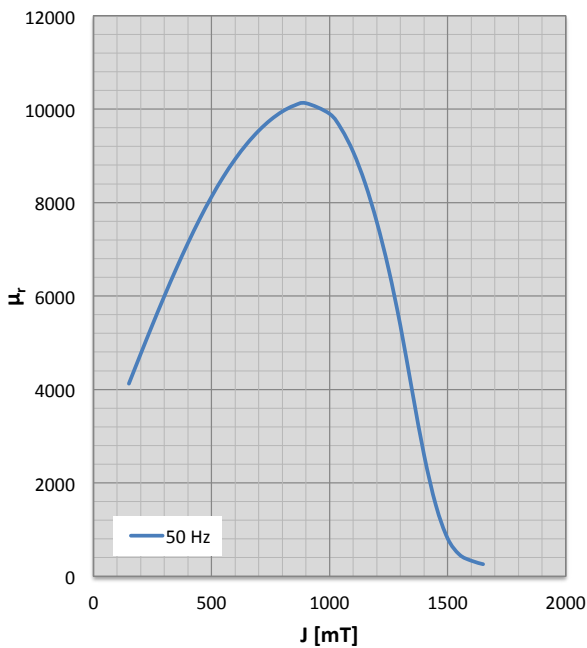
**Characteristics  $P_s/J$  loss curve and characteristics  $J/H$  magnetization curve**

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	29	0.05	4123	150	29	0.06	4105	150	31	0.28	3722
200	33	0.08	4762	200	33	0.10	4724	200	36	0.46	4161
250	37	0.11	5387	250	37	0.14	5331	250	42	0.65	4590
300	41	0.15	5995	300	41	0.18	5920	300	47	0.86	5005
350	44	0.18	6579	350	45	0.23	6484	350	51	1.08	5399
400	48	0.22	7132	400	48	0.28	7017	400	56	1.32	5770
450	51	0.27	7649	450	52	0.33	7513	450	61	1.59	6111
500	55	0.31	8124	500	55	0.39	7965	500	65	1.88	6418
550	58	0.37	8551	550	58	0.46	8370	550	69	2.20	6686
600	61	0.42	8929	600	62	0.53	8728	600	73	2.56	6920
650	64	0.48	9259	650	64	0.61	9040	650	77	2.94	7122
700	67	0.55	9539	700	67	0.69	9310	700	81	3.35	7296
750	70	0.62	9769	750	71	0.77	9539	750	85	3.79	7445
800	73	0.69	9950	800	74	0.86	9729	800	89	4.26	7574
850	76	0.76	10076	850	77	0.96	9877	850	93	4.74	7684
900	80	0.84	10127	900	81	1.06	9959	900	97	5.26	7765
1000	92	1.01	9899	1000	92	1.27	9803	1000	108	6.38	7795
1050	99	1.10	9573	1050	100	1.39	9510	1050	115	6.99	7732
1100	109	1.21	9083	1100	109	1.52	9056	1100	122	7.66	7653
1150	120	1.32	8418	1150	120	1.65	8434	1150	130	8.37	7556
1200	139	1.43	7582	1200	139	1.80	7637	1200	145	9.14	7237
1250	170	1.56	6572	1250	168	1.97	6650	1250	172	9.97	6497
1300	213	1.72	5358	1300	210	2.16	5443	1300	213	10.93	5367
1350	290	1.90	3958	1350	283	2.39	4035	1350	290	12.09	3974
1400	496	2.10	2599	1400	484	2.64	2659	1400	497	13.34	2599
1450	931	2.30	1523	1450	913	2.89	1559	1450	934	14.58	1515
1500	1635	2.50	810	1500	1605	3.14	826	1500	1644	15.88	804
1550	2634	2.69	465	1550	2584	3.37	472	1550	2651	17.28	461
1600	3951	2.88	335	1600	3880	3.61	341	1600	3980	18.78	332
1650	5589	3.06	260	1650	5497	3.85	265	1650	5627	20.36	258
1700	7454	3.24	201	1700	7343	4.09	204	1700	7501	21.99	199

**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	29	0.25	2907								
150	36	0.73	3227	150	38	1.01	3023				
200	43	1.22	3544	200	45	1.69	3309				
250	49	1.73	3853	250	53	2.40	3588				
300	56	2.28	4152	300	60	3.16	3857				
350	62	2.87	4436	350	67	3.98	4112				
400	68	3.52	4703	400	73	4.88	4350				
450	74	4.24	4948	450	80	5.88	4567	450	83	7.46	4418
500	80	5.03	5168	500	86	6.99	4761	500	89	8.98	4564
550	85	5.91	5360	550	92	8.22	4928	550	96	10.65	4685
600	90	6.88	5525	600	98	9.58	5069	600	102	12.47	4780
650	95	7.94	5663	650	104	11.07	5184	650	109	14.45	4851
700	100	9.09	5776	700	110	12.68	5274	700	116	16.60	4902
750	106	10.31	5864	750	115	14.41	5341	750	124	18.92	4934
800	111	11.62	5929	800	122	16.27	5386	800	131	21.41	4952
850	117	13.02	5971	850	128	18.25	5409	850	139	24.08	4956
900	123	14.50	5991	900	135	20.37	5412	900	147	26.96	4948
1000	137	17.78	5970	1000	151	25.08	5372	1000	165	33.41	4888
1050	145	19.59	5929	1050	160	27.70	5332	1050	175	37.05	4837
1100	153	21.56	5860	1100	168	30.54	5281	1100	186	41.02	4772
1150	162	23.70	5754	1150	177	33.64	5213	1150	196	45.37	4692
1200	175	26.01	5607	1200	189	36.98	5112	1200	210	50.06	4593
1250	196	28.51	5369	1250	210	40.64	4926	1250	230	55.12	4442
1300	229	31.39	4822	1300	239	44.85	4497	1300	256	60.93	4123
1350	296	34.80	3813	1350	296	49.80	3704	1350	308	67.70	3524
1400	496	38.48	2612	1400	483	55.16	2678	1400	487	74.90	2650
1450	929	42.21	1551	1450	906	60.65	1630	1450	900	82.20	1612
1500	1638	46.24	806	1500	1599	66.73	825	1500	1591	90.91	834
1550	2649	50.82	453	1550	2585	73.78	450	1550	2620	101.55	489
1600	3979	55.87	333	1600	3911	81.36	337	1600	3984	112.96	284
1650	5623	61.22	263	1650	5598	88.95	272	1650	5601	124.95	183
1700	7490	66.77	203	1700	7541	96.48	208	1700	7386	137.31	151



Available Dimensions

Grade named according to isovac®	Delivery form	Width [mm]	Length [mm]
isovac 270-35 A	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 270-35 A	✔	✔	☰	✔	✔

✔ Available ☰ On request

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