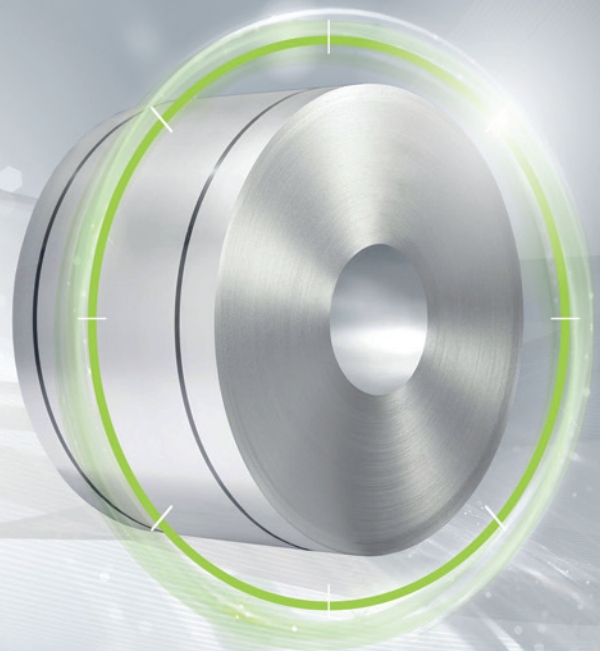


FULLY
PROCESSED

isovac high-perm 300-35 A HC

The specialist for high permeability 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. Its high thermal conductivity and optimized texture make isovac HP 300-35 A HC (high-perm/high-conductivity) ensure rapid heat dissipation in combination with increased magnetizability and low specific total loss. This makes innovative design strategies possible for electrical machinery.

Upon request, isovac HP 300-35 A HC can be supplied with an electrical steel insulation system and can be used directly in as-delivered condition.

Convincing advantages:

- » Lower cooling power necessary through higher thermal conductivity than that of standard isovac® grades (conductivity increased by up to 20%)
- » Increased performance achieved by increasing torque based on higher magnetizability (improvement by up to 0.05 T at J25, J50, J100)
- » 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 HP 300-35 A HC, 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 HP 300-35 A HC	1.0803	M300-35A	M300-35A 5	35A300	2411	36F165	M-22	35C300	35W300

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 HP 300-35 A HC	285	265	415	32	130

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_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 HP 300-35 A HC	1.20	0.67	2.60	1.46	1.67	1.76	1.88	4000

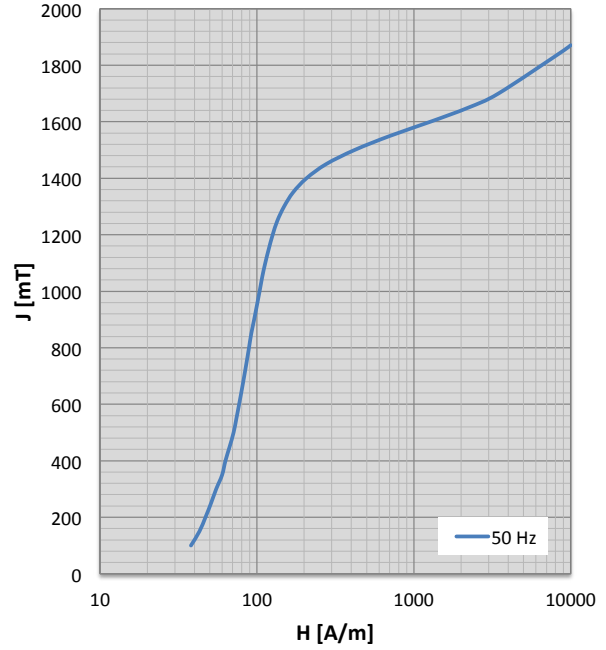
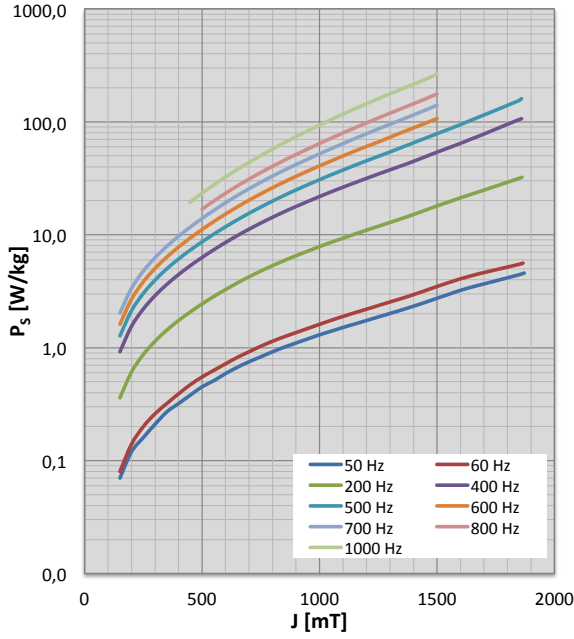
Physical properties:

Typical values

Grade named according to isovac®	Density ρ [g/cm ³]	Specific electrical resistance ρ_s [$\mu\Omega\text{cm}$]	Thermal conductivity λ [W/mK]
isovac HP 300-35 A HC	7.76	35.8	33

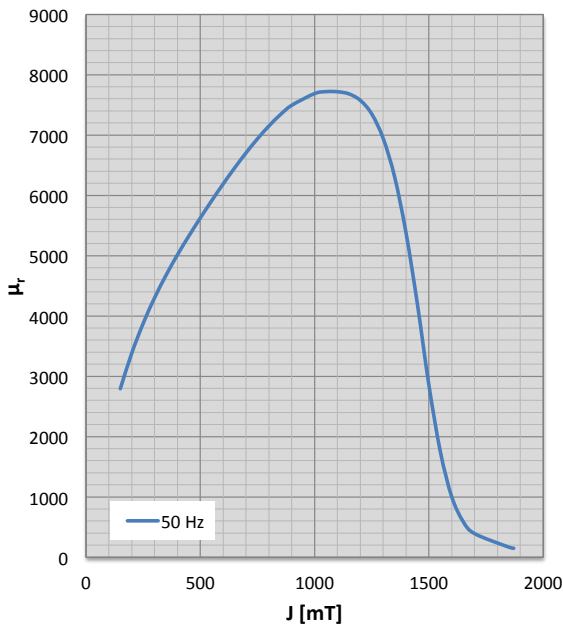
Characteristics P_s/J loss curve and characteristics J/H magnetization curve

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	38	0,02	2077					100	40	0,12	1983
150	43	0,07	2796	150	44	0,08	2704	150	46	0,36	2600
200	47	0,12	3384	200	49	0,14	3272	200	52	0,61	3083
250	51	0,16	3877	250	53	0,20	3750	250	57	0,87	3476
300	55	0,21	4302	300	57	0,26	4163	300	63	1,14	3809
350	60	0,27	4676	350	61	0,32	4531	350	68	1,43	4101
400	63	0,32	5015	400	65	0,39	4868	400	73	1,74	4369
450	67	0,38	5328	450	69	0,47	5184	450	77	2,07	4621
500	71	0,45	5626	500	72	0,55	5490	500	82	2,44	4868
550	74	0,51	5913	550	76	0,63	5792	550	86	2,84	5115
600	77	0,59	6190	600	78	0,72	6090	600	89	3,27	5359
650	80	0,67	6455	650	81	0,82	6380	650	92	3,74	5595
700	83	0,75	6705	700	84	0,92	6660	700	96	4,24	5817
750	86	0,83	6938	750	86	1,03	6926	750	99	4,77	6018
800	89	0,92	7150	800	89	1,14	7171	800	103	5,32	6192
850	92	1,01	7338	850	92	1,25	7392	850	107	5,91	6334
900	96	1,10	7494	900	94	1,36	7580	900	111	6,52	6443
1000	104	1,30	7688	1000	102	1,61	7820	1000	121	7,85	6565
1050	108	1,40	7720	1050	106	1,75	7863	1050	127	8,57	6581
1100	113	1,51	7718	1100	111	1,89	7868	1100	133	9,32	6569
1150	119	1,62	7683	1150	117	2,04	7834	1150	140	10,13	6527
1200	126	1,74	7575	1200	124	2,19	7709	1200	148	10,98	6436
1250	135	1,87	7349	1250	134	2,36	7444	1250	158	11,88	6281
1300	149	2,01	6943	1300	148	2,54	7006	1300	171	12,85	6057
1350	170	2,16	6306	1350	169	2,73	6361	1350	188	13,91	5721
1400	207	2,33	5375	1400	205	2,95	5424	1400	218	15,11	5110
1450	276	2,52	4186	1450	273	3,20	4227	1450	279	16,48	4129
1500	419	2,74	2851	1500	413	3,48	2887	1500	420	17,97	2841
1550	705	2,97	1749	1550	694	3,77	1776	1550	713	19,55	1729
1600	1274	3,22	1000	1600	1259	4,07	1011	1600	1300	21,22	979
1650	2225	3,45	590	1650	2217	4,35	592	1650	2287	22,99	574
1700	3461	3,67	391	1700	3472	4,63	390	1700	3574	24,84	379
1852	9000	4,44	164	1848	9000	5,46	163	1844	9000	31,32	163
1871	10000	4,58	149	1866	10000	5,61	148	1862	10000	32,20	148

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	41	0,31	1926								
150	49	0,92	2461	150	51	1,27	2352	150	53	1,61	2273
200	56	1,55	2860	200	58	2,13	2722	200	60	2,69	2648
250	63	2,20	3174	250	66	3,02	3010	250	68	3,83	2940
300	70	2,89	3433	300	74	3,97	3245	300	75	5,04	3175
350	76	3,63	3656	350	81	4,99	3446	350	83	6,34	3368
400	83	4,44	3856	400	88	6,10	3623	400	90	7,78	3531
450	89	5,32	4043	450	95	7,31	3786	450	98	9,36	3671
500	94	6,29	4224	500	101	8,65	3941	500	105	11,12	3794
550	99	7,36	4401	550	107	10,13	4091	550	112	13,08	3902
600	104	8,54	4572	600	113	11,76	4232	600	120	15,24	3995
650	109	9,82	4729	650	119	13,55	4359	650	127	17,62	4069
700	114	11,20	4866	700	125	15,49	4467	700	135	20,21	4124
750	120	12,69	4977	750	131	17,59	4551	750	144	23,03	4157
800	126	14,28	5057	800	138	19,86	4607	800	153	26,07	4169
850	133	15,98	5102	850	146	22,31	4633	850	163	29,36	4160
900	140	17,79	5118	900	155	24,93	4631	900	173	32,88	4139
1000	156	21,79	5091	1000	174	30,74	4563	1000	194	40,73	4097
1050	165	24,01	5058	1050	185	33,96	4505	1050	205	45,08	4080
1100	174	26,36	5018	1100	197	37,42	4444	1100	217	49,84	4037
1150	184	28,87	4975	1150	209	41,16	4388	1150	231	55,03	3959
1200	193	31,55	4938	1200	221	45,15	4318	1200	245	60,51	3893
1250	203	34,46	4904	1250	235	49,41	4235	1250	258	66,27	3853
1300	214	37,56	4832	1300	247	54,11	4184	1300	277	73,03	3732
1350	230	40,89	4670	1350	258	59,38	4166	1350	296	80,54	3634
1400	257	44,66	4343	1400	278	65,19	4009	1400	315	88,28	3535
1450	309	49,03	3738	1450	328	71,54	3518	1450	363	96,98	3175
1500	435	53,83	2744	1500	455	78,46	2626	1500	475	106,96	2513
1550	713	58,88	1731	1550	731	86,02	1688				
1600	1297	64,47	982	1600	1303	94,54	977				
1650	2308	70,90	569	1650	2284	104,28	575				
1700	3637	77,94	372	1700	3571	114,93	379				
1838	9000	102,48	163	1846	9000	153,20	163				
1860	10000	106,48	148	1860	10000	160,45	148				

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	56	2,03	2143								
200	63	3,36	2515								
250	71	4,76	2805								
300	79	6,26	3036								
350	86	7,89	3221								
400	94	9,69	3371					400	110	15,74	2897
450	103	11,69	3491	450	108	14,02	3306	450	118	19,43	3037
500	111	13,92	3588	500	116	16,81	3437	500	126	23,34	3147
550	119	16,42	3664	550	124	19,89	3529	550	136	27,66	3224
600	128	19,19	3724	600	133	23,28	3588	600	146	32,47	3270
650	137	22,23	3769	650	143	27,01	3622	650	157	37,81	3288
700	146	25,55	3803	700	153	31,10	3635	700	170	43,71	3283
750	156	29,16	3827	750	164	35,54	3635	750	183	50,22	3257
800	166	33,06	3842	800	176	40,38	3625	800	198	57,38	3215
850	176	37,25	3849	850	187	45,62	3608	850	214	65,23	3160
900	186	41,79	3842	900	200	51,32	3580	900	231	73,82	3096
1000	211	52,03	3774	1000	229	64,30	3482	1000	269	93,49	2954
1050	225	57,84	3710	1050	245	71,68	3411	1050	290	104,67	2881
1100	241	64,14	3637	1100	263	79,71	3335	1100	312	116,86	2808
1150	257	70,99	3563	1150	281	88,42	3258	1150	334	130,14	2736
1200	274	78,40	3486	1200	300	97,86	3181	1200	359	144,57	2663
1250	292	86,40	3404	1250	321	108,09	3102	1250	384	160,21	2590
1300	311	95,07	3327	1300	342	119,15	3025	1300	411	177,04	2520
1350	330	104,57	3252	1350	366	131,20	2932	1350	443	195,31	2425
1400	353	115,08	3155	1400	389	144,52	2862	1400	468	215,19	2378
1450	392	126,77	2944	1450	413	159,32	2791	1450	479	237,14	2411
1500	495	140,30	2410	1500	504	176,53	2367	1500	568	264,64	2102

Available Dimensions

Grade named according to isovac®	Delivery form	Width [mm]	Length [mm]
isovac HP 300-35 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 HP 300-35 A HC	✔	✔	☰	✔	✔

✔ Available ☰ On request

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