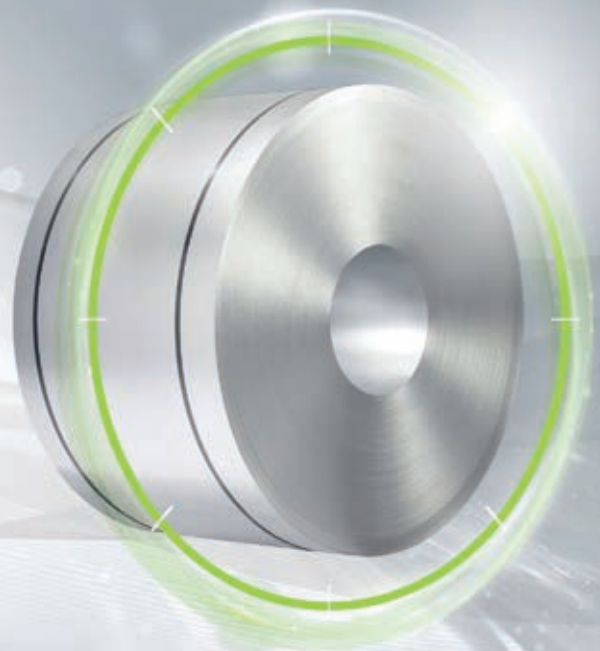


FULLY
PROCESSED

isovac high-perm NO27-14 Y420

The specialist with high permeability for e-mobility

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. Thanks to perfectly adjusted texture and a sheet thickness of 0.27 mm, isovac HP NO27-14 Y420 achieves low losses and high permeability in the high-frequency range and is thus perfectly suited for high-speed motors and machinery with high torque. This increase in efficiency makes it possible to maintain the same level of performance while reducing component size and saving material, weight and costs. This also means that a higher level of performance can be achieved with the same component size. The high strength of isovac HP NO27-14 Y420 is achieved through optimized grain size for high frequencies and high alloy content.

Convincing advantages:

- » Excellent magnetic and mechanical properties make the material highly suitable for rotors and stators in high frequency applications
- » Possible cost optimization through less material usage, less weight and less space requirement resulting from downsizing while maintaining the same level of performance
- » 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: Predestined for use in combination with Backlack

voestalpine supplies isovac HP NO27-14 Y420 pursuant to EN 10303, 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		EN 10303	IEC 60404-8-4	JIS C2552	GOST 21427.2	ASTM A677	AISI	IS648
	Material No.	Abbreviation							
isovac HP NO27-14 Y420	-	-	NO27-15	-	-	-	-	-	-

Mechanical properties:

Tensile test according to DIN EN ISO 6892-1 and hardness according to DIN EN ISO 6507-1 (Typical values);
Test direction: Longitudinal

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 NO27-14 Y420	440	435	550	19	180

Magnetic properties:

in as-delivered condition (Typical values). Magnetic measurement pursuant to DIN IEC 60404-2.
Test direction: Mean value from longitudinal and transverse measurements at 50 Hz (400 Hz)

Grade named according to isovac®	Specific total loss				Magnetic polarization			Relative permeability 1.5 T μ _r 50 Hz [-]
	1.0 T P10		1.5 T P15		2500 A/m J25	5000 A/m J50	10000 A/m J100	
	400 Hz [W/kg]	400 Hz [W/lb]	400 Hz [W/kg]	400 Hz [W/lb]	50 Hz [T]	50 Hz [T]	50 Hz [T]	
isovac HP NO27-14 Y420	13.5	6.1	33.0	15.0	1.54	1.64	1.76	650

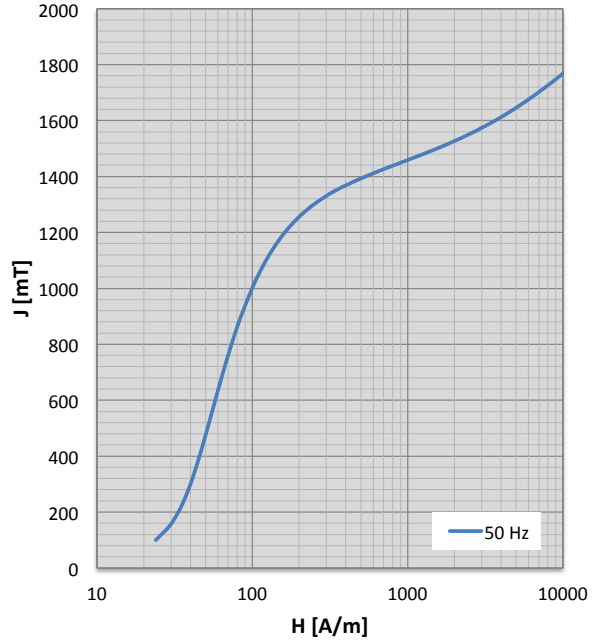
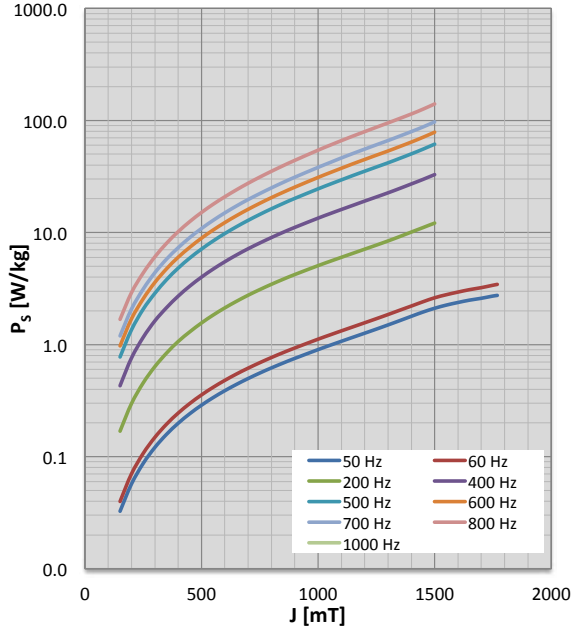
Physical properties:

Typical values

Grade named according to isovac®	Density ρ [g/cm³]	Specific electrical resistance ρ _s [μΩcm]	Thermal conductivity λ [W/mK]
isovac HP NO27-14 Y420	7.60	64.5	22

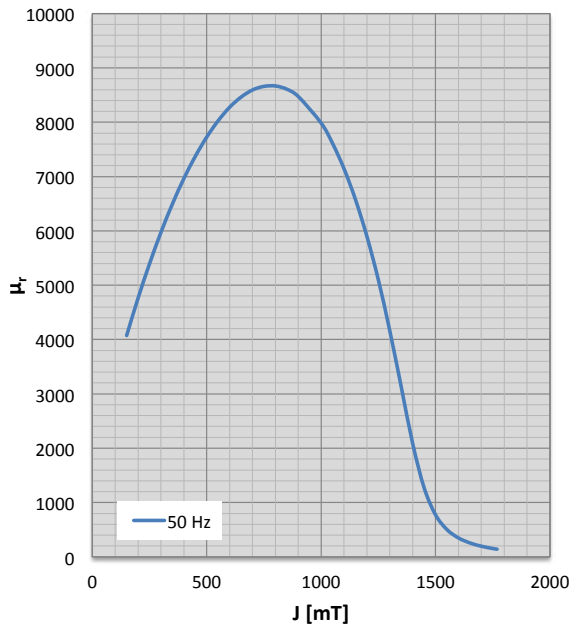
Characteristics P_s/J loss curve and characteristics J/H magnetization curve

Test direction: Mean value from longitudinal and transverse measurements at indicated frequencies, Epstein test



Characteristics μ_r/J permeability curve

Test direction: Mean value from longitudinal and transverse measurements at 50 Hz, Epstein test



Frequency dependence of magnetic properties

Test direction: Mean value longitudinal and transverse at indicated frequencies and polarizations, Epstein 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	24	0.01	3324	100	24	0.02	3330	100	24	0.07	3272
150	29	0.03	4077	150	29	0.04	4074	150	31	0.17	3904
200	33	0.06	4764	200	33	0.07	4759	200	36	0.30	4477
250	37	0.09	5395	250	37	0.11	5378	250	40	0.46	4994
300	40	0.12	5975	300	40	0.15	5951	300	44	0.64	5472
350	43	0.16	6496	350	43	0.19	6465	350	47	0.84	5907
400	46	0.20	6963	400	46	0.24	6917	400	51	1.07	6303
450	49	0.24	7372	450	49	0.30	7325	450	54	1.30	6677
500	51	0.29	7728	500	52	0.36	7681	500	57	1.56	6999
550	55	0.34	8028	550	55	0.42	7985	550	60	1.83	7308
600	58	0.39	8275	600	58	0.48	8233	600	63	2.12	7568
650	61	0.44	8462	650	61	0.55	8426	650	66	2.43	7792
700	65	0.50	8594	700	65	0.62	8551	700	70	2.76	7991
750	69	0.56	8659	750	69	0.69	8629	750	73	3.09	8130
800	73	0.62	8667	800	74	0.77	8641	800	77	3.45	8219
850	79	0.68	8608	850	79	0.85	8585	850	82	3.82	8235
900	85	0.75	8474	900	85	0.93	8460	900	87	4.22	8207
1000	100	0.90	7984	1000	100	1.12	7975	1000	101	5.06	7867
1050	110	0.98	7608	1050	110	1.22	7609	1050	110	5.52	7568
1100	123	1.07	7142	1100	123	1.33	7140	1100	122	6.01	7164
1150	139	1.16	6575	1150	139	1.44	6574	1150	138	6.53	6638
1200	162	1.26	5897	1200	162	1.57	5898	1200	160	7.10	5980
1250	195	1.37	5097	1250	195	1.70	5100	1250	192	7.72	5189
1300	249	1.50	4159	1300	248	1.85	4164	1300	244	8.41	4244
1350	344	1.63	3128	1350	344	2.03	3123	1350	336	9.20	3201
1400	535	1.79	2084	1400	535	2.21	2082	1400	521	10.09	2140
1450	909	1.95	1271	1450	912	2.41	1267	1450	884	11.06	1306
1500	1547	2.11	773	1500	1546	2.62	773	1500	1501	12.13	796
1550	2465	2.25	501	1550	2468	2.79	501	1550	2391	13.19	517
1600	3660	2.37	349	1600	3664	2.94	349				
1650	5134	2.49	257	1650	5125	3.09	257				
1700	6922	2.59	196	1700	6912	3.22	197				
1748	9000	2.71	156	1748	9000	3.38	156				
1769	10000	2.75	142	1769	10000	3.44	142				

Available Dimensions

Grade named according to isovac®	Delivery form	Width [mm]	Length [mm]
isovac HP NO27-14 Y420	Wide strip / Slit strip	19 – 1320	-
	Cut-to-length sheets	300 – 1320	300 – 5000

Deliverable coating systems

Grade named according to isovac®	Uncoated	C-3	Backlack	C-5	C-6
isovac HP NO27-14 Y420	✔	✔	☰	✔	✔

✔ Available ☰ On request

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