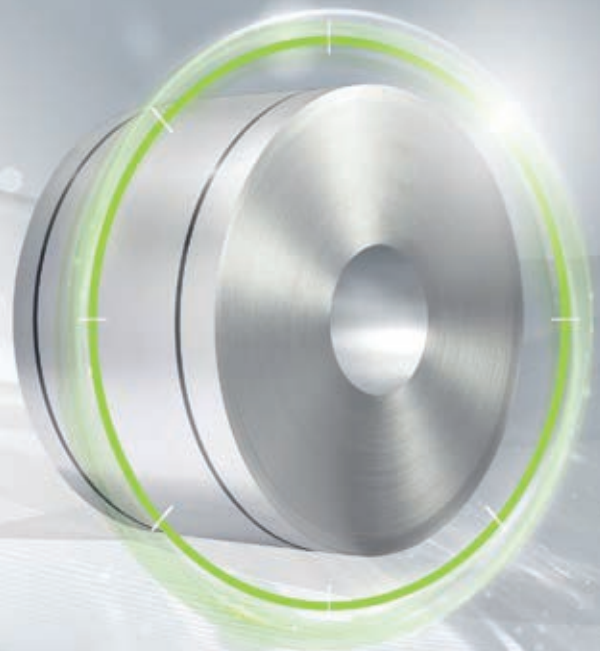


FULLY  
PROCESSED

## isovac high-perm NO35-18 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 0.35 mm, isovac HP NO35-18 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 NO35-18 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 NO35-18 Y420, 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.

**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 NO35-18 Y420	455	445	570	23	200

**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
	1.0 T P10		1.5 T P15		2500 A/m J25	5000 A/m J50	10000 A/m J100	1.5 T $\mu_r$
	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 NO35-18 Y420	16.5	7.5	40.0	18.2	1.55	1.64	1.76	800

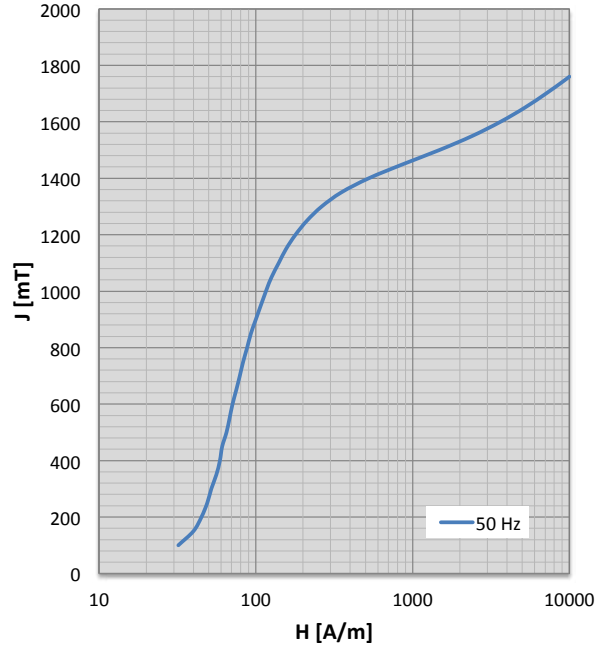
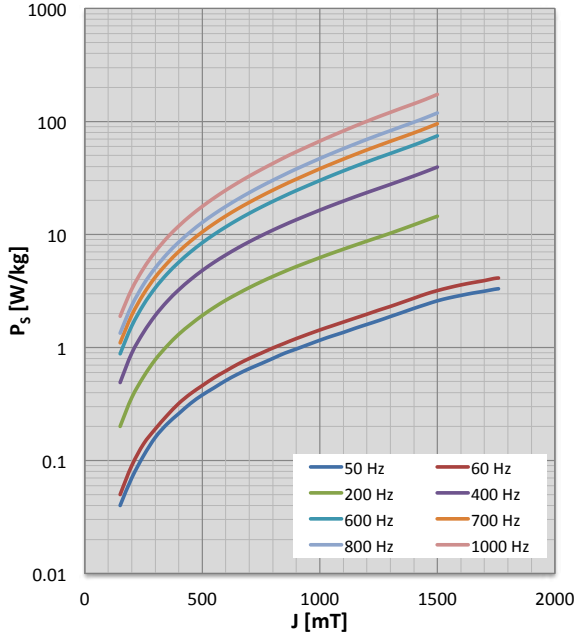
**Physical properties:**

Typical values

Grade named according to isovac®	Density $\rho$ [g/cm³]	Specific electrical resistance $\rho_s$ [ $\mu\Omega\text{cm}$ ]	Thermal conductivity $\lambda$ [W/mK]
isovac HP NO35-18 Y420	7.60	64.5	22

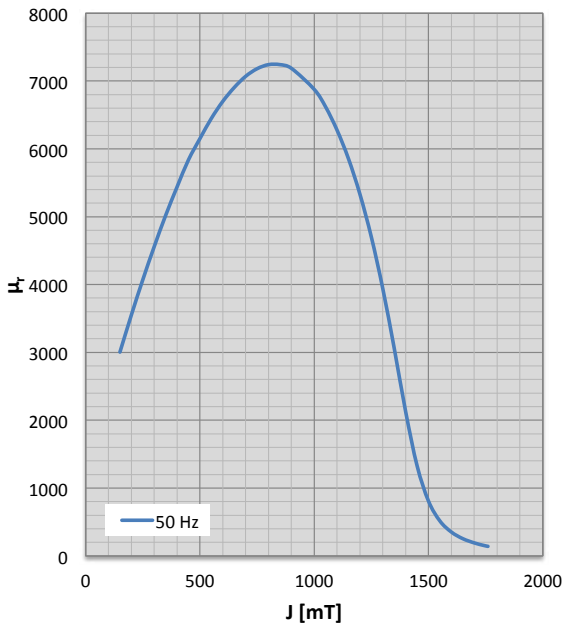
**Characteristics  $P_s/J$  loss curve and characteristics  $J/H$  magnetization curve**

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



**Characteristics  $\mu_r/J$  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 <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	32	0.02	2450	100	32	0.02	2484	100	32	0.08	2461
150	40	0.04	3004	150	39	0.05	3044	150	40	0.20	2967
200	45	0.07	3551	200	44	0.09	3582	200	46	0.36	3458
250	49	0.11	4070	250	48	0.14	4109	250	51	0.55	3915
300	52	0.16	4559	300	52	0.19	4595	300	55	0.78	4335
350	56	0.21	5019	350	55	0.25	5038	350	59	1.03	4745
400	59	0.26	5439	400	58	0.32	5444	400	62	1.31	5117
450	61	0.32	5839	450	62	0.39	5810	450	66	1.60	5460
500	65	0.38	6151	500	65	0.46	6135	500	69	1.92	5769
550	68	0.44	6449	550	68	0.54	6423	550	72	2.26	6041
600	71	0.51	6700	600	72	0.62	6673	600	76	2.62	6280
650	75	0.58	6904	650	75	0.71	6875	650	80	2.99	6492
700	79	0.65	7069	700	79	0.80	7037	700	84	3.39	6670
750	83	0.72	7181	750	83	0.89	7158	750	88	3.81	6818
800	88	0.80	7241	800	88	0.99	7218	800	92	4.25	6920
850	93	0.89	7241	850	94	1.09	7224	850	97	4.71	6984
900	100	0.97	7187	900	100	1.20	7167	900	102	5.20	7004
1000	116	1.16	6876	1000	116	1.43	6864	1000	116	6.24	6866
1050	126	1.26	6617	1050	126	1.55	6610	1050	126	6.81	6658
1100	140	1.36	6274	1100	140	1.68	6269	1100	138	7.41	6355
1150	156	1.48	5852	1150	156	1.82	5849	1150	154	8.05	5956
1200	179	1.60	5330	1200	179	1.97	5329	1200	176	8.73	5434
1250	212	1.73	4698	1250	212	2.14	4693	1250	208	9.46	4791
1300	263	1.88	3938	1300	263	2.31	3935	1300	258	10.26	4016
1350	351	2.04	3059	1350	352	2.51	3053	1350	345	11.17	3117
1400	525	2.22	2125	1400	526	2.73	2119	1400	513	12.18	2174
1450	869	2.40	1328	1450	871	2.97	1325	1450	848	13.30	1361
1500	1480	2.59	807	1500	1486	3.19	804	1500	1441	14.50	830
1550	2402	2.75	514	1550	2407	3.39	513	1550	2338	15.70	529
1600	3631	2.89	352	1600	3638	3.58	351				
1650	5187	3.03	254	1650	5184	3.75	254				
1700	7087	3.15	192	1700	7094	3.91	192				
1741	9000	3.27	155	1741	9000	4.08	155				
1760	10000	3.31	141	1760	10000	4.12	141				





Available Dimensions

Grade named according to isovac®	Delivery form	Width [mm]	Length [mm]
isovac HP NO35-18 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 NO35-18 Y420	✔	✔	☰	✔	✔

✔ Available ☰ On request

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