

ANSTEEL



Product Manual of
Electrical Steel Products
电工钢产品手册

www.ansteel.com.cn



鞍钢股份有限公司
ANGANG STEEL COMPANY LIMITED



Company Profile of Angang Steel

Angang Steel is located in Anshan, Liaoning. Angang Steel owns a comprehensive resource allocation of technology, equipment and personnel for large-scale sintering, coking, ironmaking, steelmaking, steel rolling and power implementation, and mainly produce 16 categories, 600 marks and 42,000 specifications for iron and steel products in total, including hot rolled coils, cold-rolled sheets, medium and heavy plates, cold-rolled silicon steels, galvanized sheets, color-coated sheets, seamless tubes, wire rods, heavy rails and large section bars, which are widely applied in machinery industry, metallurgical industry, chemical industry, coal industry, power industry, railway industry, ship industry, construction industry, appliance industry, aerospace industry, national defense and other key industries of national economy. The steel rails for railway, ship hull structural plates and steel plates for container are awarded the "Chinese Name-Brand Products". The internationally advanced steel production technology, process and equipment were set up and put into production in Sep. 2008, and Bayuquan Iron & Steel Subsidiary Company, which is provided with power, coking, sintering, steelmaking, steel rolling facilities and other ancillary facilities, enhances the capacity of Angang Steel.

Angang Steel is awarded the Quality Management System Certification (GB/T19001), Environmental Management System Certification (GB/T24001), Energy Management System Certification (GB/T23331) and Occupational Health and Safety Management System Certification (GB/T28001) successively. The shipbuilding steel is authorized by the classification societies of China, the US, Germany, the UK, Italy, France, Norway, South Korea, and Japan, the oil pipe, casing pipe and line pipe are provided with occupancy permit marked with APISpec5CT and 5L of the US, the automotive steel is provided with ISO/TS16949 certification, the construction product exported to Europe is provided with CE certification, and the product exported to Japan is provided with JIS certification.

Angang Steel was awarded China Quality Award in 2010, which was the only enterprise won the honor in Northeast China.

无取向电工钢

Non-Oriented Electrical Steel

1、产品标准尺寸

公称厚度 (mm)	公称宽度 (mm)	内径 (mm)
0.20 0.27 0.30 0.35 0.50 0.65	800~1250	508

2、尺寸及板形公差

公称宽度 (mm)	公称厚度 (mm)	厚度允许偏差 (mm)	纵向厚度差 (mm)	横向厚度差 (mm)	宽度允许偏差 (mm)	不平度 (%)	2m镰刀弯 (mm)
800-1000	0.20	±0.02	≤0.012	≤0.010	+1.5 0	≤2	≤1.0
	0.27	±0.02	≤0.013	≤0.012			
	0.30	±0.02	≤0.015	≤0.015			
	0.35	±0.03	≤0.02	≤0.02			
	0.50	±0.04	≤0.03	≤0.02			
	0.65	±0.04	≤0.04	≤0.03			
>1000	0.20	±0.02	≤0.02	≤0.02	+1.5 0	≤2	≤1.0
	0.27	±0.02	≤0.013	≤0.012			
	0.30	±0.02	≤0.015	≤0.015			
	0.35	±0.03	≤0.02	≤0.02			
	0.50	±0.03	≤0.03	≤0.02			
	0.65	±0.04	≤0.04	≤0.03			

注：1) 横向厚度差是指钢板中心与距边部 15mm 的厚度差。

2) 纵向厚度差是在任意 2m 长度的钢带上,沿长度方向(平行于轧制方向)测得的厚度最大值与厚度最小值之差。

3、电磁性能标准值

普通无取向电工钢系列

牌号	公称厚度 (mm)	理论密度 (kg/dm ³)	最大铁损 P _{1.5/50} (W/kg)	最小磁感 B ₅₀₀₀ (T)
35AW210	0.35	7.60	2.10	1.62
35AW230		7.60	2.30	1.62
35AW250		7.60	2.50	1.62
35AW270		7.65	2.70	1.62
35AW300		7.65	3.00	1.62
35AW360		7.65	3.60	1.63
35AW440		7.70	4.40	1.64
35AW550		7.75	5.50	1.64

无取向电工钢

Non-Oriented Electrical Steel

牌号	公称厚度 (mm)	理论密度 (kg/dm ³)	最大铁损P _{1.5/50} (W/kg)	最小磁感B ₅₀₀₀ (T)
50AW230	0.50	7.60	2.30	1.62
50AW250		7.60	2.50	1.62
50AW270		7.60	2.70	1.62
50AW290		7.60	2.90	1.62
50AW310		7.65	3.10	1.62
50AW350		7.65	3.50	1.62
50AW400		7.65	4.00	1.63
50AW470		7.70	4.70	1.64
50AW540		7.70	5.40	1.65
50AW600		7.75	6.00	1.66
50AW700		7.80	7.00	1.70
50AW800		7.80	8.00	1.70
50AW1000		7.85	10.00	1.72
50AW1300		7.85	13.00	1.74
65AW470		0.65	7.65	4.70
65AW600	7.75		6.00	1.64
65AW700	7.75		7.00	1.65
65AW800	7.80		8.00	1.69
65AW1000	7.80		10.00	1.69
65AW1300	7.85		13.00	1.69

高效无取向电工钢H系列

牌号	公称厚度 (mm)	理论密度 (kg/dm ³)	最大铁损P _{1.5/50} (W/kg)	最小磁感B ₅₀₀₀ (T)
50AW300H	0.50	7.65	3.00	1.69
50AW350H		7.70	3.50	1.70
50AW470H		7.75	4.70	1.72
50AW600H		7.75	6.00	1.74
50AW800H		7.80	8.00	1.75
50AW1000H		7.85	10.00	1.69

无取向电工钢

Non-Oriented Electrical Steel

消除应力退火高效无取向电工钢R系列

牌号	公称厚度 (mm)	理论密度 (kg/dm ³)	最大铁损P _{1.5/50} (W/kg)	最小磁感B ₅₀₀₀ (T)
35AR300	0.35	7.80	3.00	1.73
50AR300	0.50	7.75	3.00	1.72
50AR350		7.80	3.50	1.74

注：1) 检测依据 GB/T3655。

2) 对于消除应力退火高效无取向电工钢R系列产品的磁性能测试仅适用于试样在750℃下，经2小时消除应力退火后的状态。

3) P_{1.5/50}表示在最大磁感应强度为1.5T，频率为50Hz时，单位kg试样的铁芯损耗。

4) B₅₀₀₀表示对应于磁场强度为5000A/m时的磁感应强度。

电动汽车驱动电机用无取向电工钢D系列

牌号	公称厚度 (mm)	理论密度 (kg/dm ³)	最大铁损P _{10/400} (W/kg)	最小磁感B ₅₀₀₀ (T)
50AD2900	0.50	7.65	29.00	1.66
50AD3100		7.65	31.00	1.67
35AD2000	0.35	7.65	20.00	1.65
35AD2100		7.65	21.00	1.65
30AD1700	0.30	7.65	17.00	1.63
30AD1800		7.65	18.00	1.64
27AD1600	0.27	7.60	16.00	1.64
27AD1700		7.65	17.00	1.64
20AD1200	0.20	7.60	12.00	1.62
20AD1500		7.65	15.00	1.63

无取向电工钢

Non-Oriented Electrical Steel

电动汽车驱动电机用无取向电工钢DG系列

牌号	公称厚度 (mm)	理论密度 (kg/dm ³)	最大铁损P ₁₀₄₀₀ (W/kg)	最小磁感B ₅₀₀₀ (T)
35ADG1800	0.35	7.65	18.00	1.66
35ADG1900		7.65	19.00	1.67
35ADG2000		7.65	20.00	1.67
30ADG1700	0.30	7.65	17.00	1.67
30ADG1800		7.65	18.00	1.67
27ADG1600	0.27	7.65	16.00	1.66
27ADG1700		7.65	17.00	1.66
20ADG1200	0.20	7.65	12.00	1.64
20ADG1500		7.65	15.00	1.65

注：1) 检测依据 GB/T3655。

2) 对于消除应力退火高效无取向电工钢产品的磁性能测试仅适用于试样在750℃下，经2小时消除应力退火后的状态。

3) P_{1.0400}表示在最大磁感应强度为1.0T，频率为400Hz时，单位kg试样的铁芯损耗。

4) B₅₀₀₀表示对应于磁场强度为5000A/m时的磁感应强度。

无取向电工钢

Non-Oriented Electrical Steel

4、电磁性能典型值

规格	牌号	密度 (kg/dm ³)	铁损P _{1.5/50} (W/kg)	磁感B ₅₀₀₀ (T)
0.35mm	35AW230	7.60	2.22	1.65
	35AW250	7.60	2.35	1.66
	35AW270	7.65	2.40	1.67
	35AW300	7.65	2.60	1.69
	35AW330	7.65	2.70	1.69
	35AW360	7.65	3.00	1.69
	35AW400	7.65	3.30	1.69
0.50mm	50AW250	7.60	2.35	1.65
	50AW270	7.60	2.55	1.66
	50AW290	7.60	2.65	1.67
	50AW310	7.65	2.70	1.67
	50AW330	7.65	2.76	1.68
	50AW350	7.65	2.85	1.69
	50AW400	7.70	2.95	1.69
	50AW470	7.70	3.55	1.68
	50AW600	7.75	3.68	1.70
	50AW700	7.80	4.55	1.72
	50AW800	7.80	4.75	1.72
	50AW1000	7.85	5.41	1.74
	50AW1300	7.85	5.55	1.75
0.65mm	65AW800	7.80	5.14	1.72
	65AW1000	7.80	6.32	1.73
0.50mm	50AW470H	7.75	3.15	1.72
	50AW600H	7.75	3.70	1.74
	50AW800H	7.80	4.50	1.75
	50AW1000H	7.85	5.20	1.76

无取向电工钢

Non-Oriented Electrical Steel

5、机械性能典型值

规格	牌号	密度 (kg/dm ³)	抗拉强度 (N/mm ²)	屈服强度 (N/mm ²)	延伸率 (%)	硬度 (Hv1)	弯曲 (次)
0.35mm	35AW230	7.60	545	415	10	203	2
	35AW250	7.60	532	407	10	200	2
	35AW270	7.65	522	390	17	197	2
	35AW300	7.65	463	313	24	171	3
	35AW330	7.65	457	305	26	170	3
	35AW360	7.65	423	268	31	151	5
	35AW400	7.65	420	260	30	150	5
0.50mm	50AW250	7.60	546	435	10	211	2
	50AW270	7.60	535	412	10	192	2
	50AW290	7.60	521	406	12	185	2
	50AW310	7.65	510	368	27	180	3
	50AW330	7.65	473	324	30	176	3
	50AW350	7.65	466	315	32	170	5
	50AW400	7.70	455	302	34	155	5
	50AW470	7.70	425	259	38	132	10
	50AW600	7.75	406	250	39	122	10
	50AW700	7.80	374	244	41	110	10
	50AW800	7.80	387	243	41	114	10
	50AW1000	7.85	373	250	42	108	10
50AW1300	7.85	360	241	43	103	10	
0.65mm	65AW800	7.80	386	233	42	112	10
	65AW1000	7.80	363	231	44	104	10
0.50mm	50AW470H	7.75	412	241	36	146	10
	50AW600H	7.75	400	225	40	120	10
	50AW800H	7.80	375	220	42	110	10

注：1) 检测依据GB/228、GB/T19289。

2) 以上为典型值，仅作参考不作保证。

电工钢牌号对照表

Cross Reference of Electrical Steel Designation

无取向电工钢

类型	公称厚度 (mm)	鞍钢 Ansteel	新日铁 NSC	JFE	浦项 Posco	蒂森克虏 伯 TKS	新利佩茨克 NI & SCo	阿姆克 AK	
普通无取向电工钢	0.35	35AW210	35H210	35JN210	35PN210	M210-35A			
		35AW230	35H230	35JN230	35PN230	M235-35A			
		35AW250	35H250	35JN250	35PN250	M250-35A	2413	M-15	
		35AW270	35H270	35JN270	35PN270	M270-35A	2412	M-19	
		35AW300	35H300	35JN300	35PN300	M300-35A	2411	M-22/M-27	
		35AW360	35H360	35JN360	35PN360				
		35AW440	35H440	35JN440	35PN455				
					35PN560				
		0.50	50AW230	50H230	50JN230	50PN230	M230-50A		
	50AW250		50H250	50JN250	50PN250	M250-50A			
	50AW270		50H270	50JN270	50PN270	M270-50A	2414		
	50AW290		50H290	50JN290	50PN290	M290-50A	2413	M-15	
	50AW310		50H310	50JN310	50PN310	M310-50A	2412	M-19	
	50AW350		50H350	50JN350	50PN350	M350-50A		M-27/M-36	
	50AW400				50PN400	M400-50A			
	50AW470		50H470	50JN470	50PN445	M470-50A	2214		
	50AW600		50H600	50JN600	50PN595	M600-50A	2212		
	50AW700		50H700	50JN700	50PN760	M700-50A		M-47	
	50AW800	50H800	50JN800	50PN890	M800-50A	2011			
	50AW1000	50H1000	50JN1000	50PN1015	M940-50A				
	50AW1300	50H1300	50JN1300	50PN1270	M1100-50A				
		0.65	65AW470			65PN470	M470-65A		M-43
	65AW600					65PN595	M600-65A		M-45
	65AW700					65PN760	M700-65A		
	65AW800			65JN800	65PN890	M800-65A		M-47	
	65AW1000			65JN1000	65PN1015	M1000-65A			
	65AW1300			65JN1300	65PN1270	M1300-65A			
高效无取向电工钢	0.35	35AW230H		35JNE230					
		35AW250H		35JNE250					
		35AW300H		35JNE300					
	0.50	50AW300H		50JNE300					
		50AW350H		50JNE350					
		50AW470H		50JNE470					
		50AW600H							
50AW800H									
50AW1000H									
消除应力高效无取向电工钢	0.35	35AR300							
	0.50	50AR300		50JNA300					
		50AR350		50JNA350					