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cogent
瑞典电工钢厂

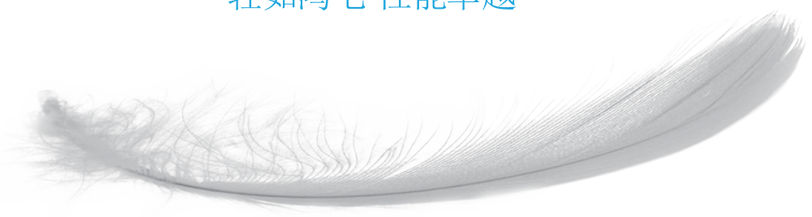
极薄电工钢

Lower loss Higher strength Maximum efficiency

Cogent Hi-Lite™是来自瑞典的无取向极薄电工钢品牌。它以无与伦比的材料特性以及卓越的表现在高频应用中得到大力发展。

Cogent Hi-Lite™极薄电工钢

High performance – Ultra light
轻如鸿毛 性能卓越



Cogent Hi-Lite is the ultimate non-oriented ultra-thin gauge electrical steel. Its unsurpassed material properties enable the development of high-frequency applications with exceptional performance.

钢客®

cogent
瑞典电工钢厂

钢客是集特钢生产、技术研发及下游加工、装配为一体的集团化公司。主要产品包括极薄电工钢、高端润滑履带、高强板、耐磨板、特种轨道等产品。自有工厂或合作钢厂位于常州、宁波、瑞典等地。团队成员遍布英国、马来、印度、美国、上海、宁波、常州等国家和地区。

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钢客® | cogent 瑞典电工钢厂

ABOUT Cogent Hi-Lite™

Cogent Hi-Lite™ is the ultimate non-oriented ultra-thin gauge electrical steel. Its unsurpassed material properties enable the development of high-frequency applications with exceptional performance.

Cogent Hi-Lite™是来自瑞典的无取向极薄电工钢品牌。它以无与伦比的材料特性以及卓越的表现在高频应用中得到大力发展。

Cogent Hi-Lite Typical Properties典型性能

Grade 牌号	Gauge 尺寸	Losses at 1.0 T 在1.0 T的铁损值 W/kg / W/lb			Jpeak（J峰值）at 5000 A/m	Yield strength 屈服强度
	mm / inch	400 Hz	1000 Hz	2500 Hz	T	MPa / KSI
NO10-1270N	0.10 / 0.004	11.4 / 5.17	35.2 / 16.0	123 / 55.8	1.65	390 / 56.6
NO12-1180N	0.12 / 0.005	10.9 / 4.94	35.9 / 16.3	131 / 59.4	1.66	390 / 56.6
NO15-1230N	0.15 / 0.006	11.2 / 5.08	38.8 / 17.6	148 / 67.1	1.66	390 / 56.6
NO18-1280N	0.18 / 0.007	11.9 / 5.40	43.4 / 19.7	171 / 77.6	1.67	390 / 56.6
NO20-1350N	0.20 / 0.008	12.2 / 5.53	45.4 / 20.6	188 / 85.3	1.67	370 / 53.7
NO18-1160H	0.18 / 0.007	10.6 / 4.81	39.2 / 17.8	157 / 71.2	1.64	445 / 64.5
NO20-1200H	0.20 / 0.008	11.2 / 5.08	42.4 / 19.2	175 / 79.4	1.64	445 / 64.5
NO25-1350H	0.25 / 0.010	12.5 / 5.67	49.5 / 22.5	214 / 97.1	1.64	445 / 64.5
NO27-1450H	0.27 / 0.011	13.7 / 6.21	55.9 / 25.4	250 / 113	1.64	445 / 64.5
NO30-1500H	0.30 / 0.012	14.1 / 6.40	58.6 / 26.6	270 / 122	1.64	445 / 64.5

Cogent Hi-Lite™ grades are offered with different Suralac™ coatings.

Cogent Hi-Lite™牌号按照不同的Suralac™涂层分类。

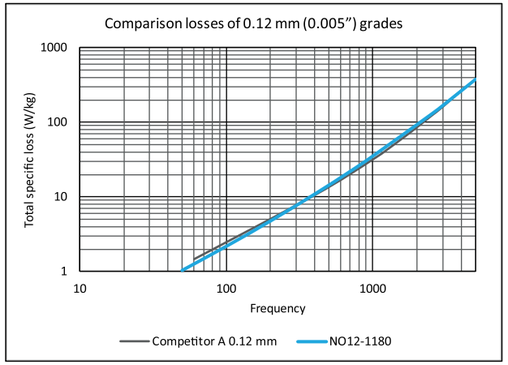
Suralac 涂层牌号	Type 美标牌号	Thickness 涂层厚度	Main characteristics 主要特征
7000	C-5	0.7 µm, 30 µinch	High temperature, Annealable 高温, 可退火
7000S	C-5 ”punching” 冲压	0.7 µm, 30 µinch	High temperature, Stampability 高温, 冲压性
9000	”C-3” bonding 粘接	4.5 µm, 180 µinch	Bonding coating 粘接涂层

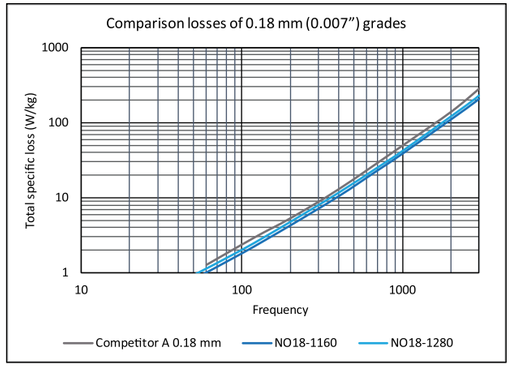
Loss at high frequencies, magnetization curve and strength are all important parameters for the design of high rotation speed machines. Cogent Hi-Lite™ offers a unique combination of these properties often exceeding similar grades from competitors.

高频损耗、磁化率曲线和强度都是设计高转速电机的重要参数。Cogent Hi-Lite™品牌集以上特性于一身，性能超越竞争对手。

Typical loss of Cogent Hi-Lite in comparison with its competitors 与竞争对手对比

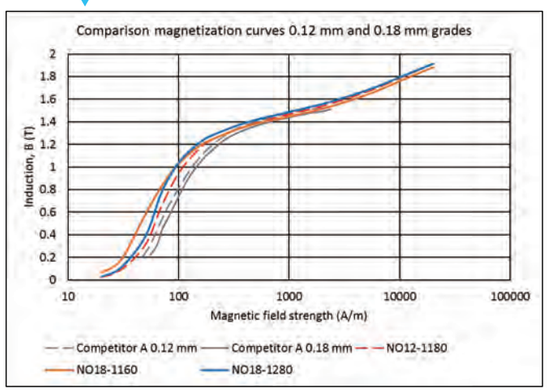
Typical loss of Cogent Hi-Lite™ in comparison with competitor A.
与竞争对手A相比，Cogent Hi-Lite™的典型铁损。

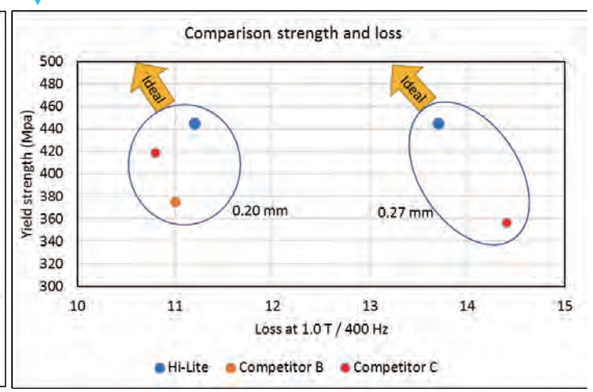




Typical magnetization curves of Cogent Hi-Lite™ compared to competitor A.
与竞争对手A相比，Cogent Hi-Lite™的典型磁化曲线。

Typical relationship between the strength and the high frequency loss for Cogent Hi-Lite ™ compared with competitor B and C.
与竞争对手B和C相比，Cogent Hi-Lite™的强度和高频损耗之间的典型关系。





Date sheets

NO10-1270N Data sheet数据表

thin non-oriented electrical steel

极薄无取向电工钢

The Cogent Hi-Lite grade NO10-1270N fulfils all requirements in the standards EN 10303:2015 and IEC 60404-8-8:2017. In many cases the minimum / maximum properties are better than those of the grades with the same nominal thickness in these standards.

Cogent Hi-Lite NO10-1270N牌号符合EN 10303：2015和IEC 60404-8-8：2017标准中的所有要求。 在许多情况下，最小/最大性能优于上述标准中相同牌号标称厚度的等级。

	Min / Max values 最小值/最大值	Typical values 典型值
Specific total loss特定总铁损值 at 1.0 T and 50 Hz	-	1.10 W/kg
Specific total loss特定总铁损值 at 1.5 T and 50 Hz	-	2.84 W/kg
Specific total loss特定总铁损值 at 1.0 T and 400 Hz	Max 12.7 W/kg	11.0 W/kg
Specific total loss特定总铁损值 at 1.5 T and 400 Hz	Max 30.9 W/kg	28.5 W/kg
Specific total loss特定总铁损值 at 1.0 T and 700 Hz	Max 23.6 W/kg	21.6 W/kg
Specific total loss特定总铁损值 at 1.0 T and 2500 Hz	-	123 W/kg
Peak magnetic polarisation磁极化峰值 at 2500 A/m and 50 Hz	Min 1.52 T	1.56 T
Peak magnetic polarisation磁极化峰值 at 5000 A/m and 50 Hz	Min 1.63 T	1.66 T
Peak magnetic polarisation磁极化峰值 at 10000 A/m and 50 Hz	Min 1.76 T	1.79 T
Relative peak permeability相对峰值渗透率 at 1.5 T and 50 Hz	-	770
Relative peak permeability相对峰值渗透率 at 1.0 T and 400 Hz	-	6200

Values for the yield strength, tensile strength and Young’s modulus are given for the rolling direction. Corresponding values for the transverse direction are approximately 2 % higher.
屈服强度、拉伸强度和杨氏模量的值是针对轧制方向给出的。 横向轧制的相应值大约高2%。

Physical and mechanical properties 物理和机械性能

Nominal thickness 0.10 mm
Density (assumed) 7.65 kg/dm³
厚度 0.10 mm
密度（假设） 7.65 kg / dm³

	Min / Max values 最小值/最大值	Typical values 典型值
Electrical resistivity at 23 °C 在23 °C的电阻率	-	51 μΩ·cm
Thermal conductivity at 23 °C 在23 °C的导热系数	-	23 W/(m·K)
Thermal expansion热膨胀 0-100 °C	-	$12 \cdot 10^{-6}$ /°C
Yield strength 屈服强度$R_{p0.2}$	Min 330 MPa	370 MPa
Tensile strength抗拉强度 R_m	Min 430 MPa	470 MPa
Elongation at fracture 断裂伸长率A_{80}	Min 14 %	19%
Young’s modulus杨氏模量	-	190 GPa

Values for the yield strength, tensile strength and Young’s modulus are given for the rolling direction. Corresponding values for the transverse direction are approximately 2 % higher.
屈服强度、拉伸强度和杨氏模量的值是针对轧制方向给出的。 横向轧制的相应值大约高2%。

Typical specific total loss 典型特定总铁损值

Jpeak J峰值 (T)	Typical specific total loss 典型特定总铁损值 (W/kg)								
	50 Hz	100 Hz	200 Hz	400 Hz	700 Hz	1000 Hz	2500 Hz	5000 Hz	10000 Hz
0.1	0.02	0.04	0.08	0.17	0.34	0.55	1.68	4.63	14.2
0.2	0.08	0.16	0.31	0.67	1.31	2.09	6.78	18.3	52.8
0.3	0.16	0.32	0.65	1.42	2.77	4.31	14.7	39.5	112
0.4	0.25	0.51	1.07	2.33	4.58	7.16	24.7	66.9	189
0.5	0.35	0.71	1.55	3.39	6.74	10.5	36.5	99.5	281
0.6	0.47	0.97	2.09	4.57	9.23	14.4	50.1	137	384
0.7	0.6	1.23	2.69	5.91	11.9	18.7	65.2	181	
0.8	0.74	1.55	3.36	7.42	14.7	23.5	81.4	228	
0.9	0.91	1.89	4.12	9.12	18	28.8	102	281	
1	1.1	2.29	4.94	11	21.6	34.4	123		
1.1	1.33	2.75	5.99	13.3	26.2	41.4	147		
1.2	1.6	3.29	7.18	16	31.3	49.1	174		
1.3	1.94	4.01	8.68	19.4	37.5	59	208		
1.4	2.36	4.91	10.6	23.6	45.3	71.7	250		
1.5	2.84	5.76	12.6	28.5	54.6	86	300		
1.6	3.24	6.67	14.5	32.6	62.8	99.3	353		
1.7	3.73	7.57							
1.8	4.19	8.45							
1.9	4.68	9.65							

Typical peak magnetic polarisation (magnetisation curve)
典型磁极化峰值（磁极化曲线）

Hpeak H峰值 (A/m)	Typical peak magnetic polarisation, Jpeak 典型磁极化峰值, J峰值(T)								
	50 Hz	100 Hz	200 Hz	400 Hz	700 Hz	1000 Hz	2500 Hz	5000 Hz	10000 Hz
20	0.02	0.019	0.019	0.019	0.018	0.018	0.018	0.017	0.016
30	0.04	0.04	0.04	0.04	0.03	0.03	0.03	0.03	0.02
50	0.2	0.2	0.18	0.17	0.16	0.16	0.15	0.11	0.09
70	0.55	0.54	0.52	0.5	0.47	0.45	0.29	0.21	0.17
100	0.86	0.86	0.84	0.84	0.82	0.8	0.61	0.37	0.25
150	1.1	1.1	1.09	1.09	1.09	1.08	0.99	0.74	0.48
200	1.2	1.2	1.2	1.2	1.2	1.19	1.15	1.02	0.69
400	1.35	1.35	1.35	1.34	1.34	1.34	1.34	1.31	1.18
800	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.42	
1500	1.5	1.5	1.5	1.5	1.5	1.5	1.5		
2500	1.56	1.56	1.56	1.56	1.56	1.56	1.56		
5000	1.66	1.66	1.66	1.66	1.66				
7500	1.73	1.73							
10000	1.79	1.79							
20000	1.91	1.91							

NO12-1180N Data sheet数据表

thin non-oriented electrical steel

极薄无取向电工钢

The Cogent Hi-Lite grade NO12-1180N fulfils all requirements in the standards EN 10303:2015 and IEC 60404-8-8:2017. In many cases the minimum / maximum properties are better than those of the grades with the same nominal thickness in these standards.

Cogent Hi-Lite NO12-1180N牌号符合EN 10303：2015和IEC 60404-8-8：2017标准中的所有要求。 在许多情况下，最小/最大性能优于上述标准中相同牌号标称厚度的等级。

Magnetic properties 磁性

	Min / Max values 最小值/最大值	Typical values 典型值
Specific total loss特定总铁损值 at 1.0 T and 50 Hz	-	1.00 W/kg
Specific total loss特定总铁损值 at 1.5 T and 50 Hz	-	2.61 W/kg
Specific total loss特定总铁损值 at 1.0 T and 400 Hz	Max 11.8 W/kg	10.9 W/kg
Specific total loss特定总铁损值 at 1.5 T and 400 Hz	Max 29.3 W/kg	27.2 W/kg
Specific total loss特定总铁损值 at 1.0 T and 700 Hz	Max 24.2 W/kg	22.1 W/kg
Specific total loss特定总铁损值 at 1.0 T and 2500 Hz	-	131 W/kg
Peak magnetic polarisation磁极化峰值 at 2500 A/m and 50 Hz	Min 1.54 T	1.58 T
Peak magnetic polarisation磁极化峰值 at 5000 A/m and 50 Hz	Min 1.64 T	1.67 T
Peak magnetic polarisation磁极化峰值 at 10000 A/m and 50 Hz	Min 1.77 T	1.80 T
Relative peak permeability相对峰值渗透率 at 1.5 T and 50 Hz	-	880
Relative peak permeability相对峰值渗透率 at 1.0 T and 400 Hz	-	6780

Guaranteed values for losses are maximum total specific losses and guaranteed values for magnetic olarisations are minimum peak polarisations.
保证铁损值是最大特定总损耗，磁极化的保证值是最小磁极化峰值。

Physical and mechanical properties 物理和机械性能

Nominal thickness 0.12 mm
Density (assumed) 7.65 kg/dm³
厚度 0.12mm
密度（假设） 7.65 kg / dm³

	Min / Max values 最小值/最大值	Typical values 典型值
Electrical resistivity at 23 °C 在23 °C的电阻率	-	51 μΩ·cm
Thermal conductivity at 23 °C 在23 °C的导热系数	-	23 W/(m·K)
Thermal expansion热膨胀 0-100 °C	-	$12 \cdot 10^{-6}$ /°C
Yield strength 屈服强度$R_{p0.2}$	Min 330 MPa	370 MPa
Tensile strength抗拉强度 R_m	Min 430 MPa	470 MPa
Elongation at fracture 断裂伸长率A_{80}	Min 14 %	19%
Young's modulus杨氏模量	-	190 GPa

Values for the yield strength, tensile strength and Young's modulus are given for the rolling direction. Corresponding values for the transverse direction are approximately 2 % higher.
屈服强度、拉伸强度和杨氏模量的值是针对轧制方向给出的。 横向轧制的相应值大约高2%。

Magnetic properties 磁性

Jpeak J峰值 (T)	Typical specific total loss 典型特定总铁损值 (W/kg)								
	50 Hz	100 Hz	200 Hz	400 Hz	700 Hz	1000 Hz	2500 Hz	5000 Hz	10000 Hz
0.1	0.02	0.05	0.08	0.18	0.35	0.56	2.03	5.32	16.3
0.2	0.08	0.17	0.31	0.68	1.37	2.16	7.43	21.1	59.2
0.3	0.15	0.33	0.64	1.42	2.83	4.43	15.6	44.1	127
0.4	0.23	0.49	1.05	2.33	4.67	7.4	26.3	73.6	213
0.5	0.33	0.69	1.51	3.39	6.84	10.9	38.9	109	318
0.6	0.44	0.92	2.03	4.58	9.28	14.8	53.5	151	441
0.7	0.56	1.18	2.6	5.91	12	19.2	69.9	198	
0.8	0.7	1.46	3.23	7.37	15	24.1	88.2	252	
0.9	0.83	1.77	3.94	9.01	18.4	29.5	108	313	
1	1	2.12	4.75	10.9	22.1	35.5	131	381	
1.1	1.21	2.55	5.65	13	26.4	42.3	156		
1.2	1.45	3.06	6.76	15.5	31.4	50.2	184		
1.3	1.76	3.71	8.16	18.6	37.5	59.9	218		
1.4	2.15	4.54	9.9	22.6	45.5	72.4	261		
1.5	2.61	5.38	11.9	27.2	54.7	87	313		
1.6	3.04	6.26	13.7	31.5	63.5	101	369		
1.7	3.5	7.09							
1.8	3.95	7.93							
1.9	4.46	9.08							

Typical peak magnetic polarisation (magnetisation curve) 典型磁极化峰值（磁极化曲线）

Hpeak H峰值 (A/m)	Typical peak magnetic polarisation, Jpeak 典型磁极化峰值, J峰值(T)								
	50 Hz	100 Hz	200 Hz	400 Hz	700 Hz	1000 Hz	2500 Hz	5000 Hz	10000 Hz
20	0.024	0.024	0.023	0.023	0.022	0.022	0.022	0.019	0.017
30	0.05	0.05	0.05	0.05	0.04	0.04	0.04	0.03	0.02
50	0.3	0.29	0.27	0.25	0.23	0.2	0.15	0.11	0.09
70	0.66	0.66	0.63	0.6	0.55	0.49	0.31	0.19	0.15
100	0.95	0.95	0.92	0.91	0.89	0.87	0.61	0.37	0.24
150	1.14	1.14	1.13	1.13	1.12	1.11	0.99	0.69	0.43
200	1.23	1.23	1.23	1.22	1.22	1.22	1.14	0.99	0.65
400	1.37	1.37	1.37	1.36	1.36	1.36	1.36	1.28	1.14
800	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.41	
1500	1.52	1.52	1.52	1.52	1.52	1.52	1.51		
2500	1.58	1.58	1.58	1.58	1.58	1.58	1.58		
5000	1.67	1.67	1.67	1.67	1.67				
7500	1.74	1.74							
10000	1.8	1.8							
20000	1.91	1.91							

NO15-1230N Data sheet数据表

thin non-oriented electrical steel
极薄无取向电工钢

The Cogent Hi-Lite grade NO15-1230N fulfils all requirements in the standards EN 10303:2015 and IEC 60404-8-8:2017. In many cases the minimum / maximum properties are better than those of the grades with the same nominal thickness in these standards.

Cogent Hi-Lite NO15-1230N牌号符合EN 10303：2015和IEC 60404-8-8：2017标准中的所有要求。 在许多情况下，最小/最大性能优于上述标准中相同牌号标称厚度的等级。

Magnetic properties 磁性

	Min / Max values 最小值/最大值	Typical values 典型值
Specific total loss特定总铁损值 at 1.0 T and 50 Hz	-	0.94 W/kg
Specific total loss特定总铁损值 at 1.5 T and 50 Hz	-	2.44 W/kg
Specific total loss特定总铁损值 at 1.0 T and 400 Hz	Max 12.3 W/kg	11.4 W/kg
Specific total loss特定总铁损值 at 1.5 T and 400 Hz	Max 30.4 W/kg	28.1 W/kg
Specific total loss特定总铁损值 at 1.0 T and 700 Hz	Max 25.6 W/kg	23.6 W/kg
Specific total loss特定总铁损值 at 1.0 T and 2500 Hz	-	149 W/kg
Peak magnetic polarisation磁极化峰值 at 2500 A/m and 50 Hz	Min 1.54 T	1.58 T
Peak magnetic polarisation磁极化峰值 at 5000 A/m and 50 Hz	Min 1.64 T	1.67 T
Peak magnetic polarisation磁极化峰值 at 10000 A/m and 50 Hz	Min 1.77 T	1.80 T
Relative peak permeability相对峰值渗透率 at 1.5 T and 50 Hz	-	980
Relative peak permeability相对峰值渗透率 at 1.0 T and 400 Hz	-	7100

Guaranteed values for losses are maximum total specific losses and guaranteed values for magnetic polarisations are minimum peak polarisations.
保证铁损值是最大特定总损耗，磁极化的保证值是最小磁极化峰值。

Physical and mechanical properties 物理和机械性能

Nominal thickness 0.15 mm
Density (assumed) 7.65 kg/dm³
厚度 0.15 mm
密度（假设） 7.65 kg / dm³

	Min / Max values 最小值/最大值	Typical values 典型值
Electrical resistivity at 23 °C 在23 °C的电阻率	-	51 μΩ·cm
Thermal conductivity at 23 °C 在23 °C的导热系数	-	23 W/(m·K)
Thermal expansion热膨胀 0-100 °C	-	12·10^{-6} /°C
Yield strength 屈服强度$R_{p0.2}$	Min 330 MPa	370 MPa
Tensile strength抗拉强度 R_m	Min 430 MPa	470 MPa
Elongation at fracture 断裂伸长率A_{80}	Min 14 %	19%
Young's modulus杨氏模量	-	190 GPa

Values for the yield strength, tensile strength and Young's modulus are given for the rolling direction. Corresponding values for the transverse direction are approximately 2 % higher.
屈服强度、拉伸强度和杨氏模量的值是针对轧制方向给出的。 横向轧制的相应值大约高2%。

Typical specific total loss 典型特定总铁损值

Jpeak J峰值 (T)	Typical specific total loss 典型特定总铁损值 (W/kg)								
	50 Hz	100 Hz	200 Hz	400 Hz	700 Hz	1000 Hz	2500 Hz	5000 Hz	10000 Hz
0.1	0.02	0.05	0.08	0.19	0.39	0.6	2.25	6.4	20.5
0.2	0.07	0.16	0.31	0.71	1.47	2.32	8.3	24.8	72.1
0.3	0.14	0.32	0.65	1.47	2.98	4.78	17.7	51.7	152
0.4	0.22	0.48	1.05	2.42	4.93	8.01	29.8	86.1	253
0.5	0.31	0.67	1.52	3.51	7.19	11.8	44.2	128	377
0.6	0.41	0.9	2.04	4.75	9.69	16	60.8	177	
0.7	0.53	1.15	2.61	6.1	12.7	20.8	79.3	232	
0.8	0.65	1.41	3.25	7.59	15.9	25.9	101	296	
0.9	0.79	1.71	3.93	9.51	19.6	32	124	369	
1	0.94	2.06	4.72	11.4	23.6	38.3	149		
1.1	1.13	2.46	5.59	13.6	28.5	45.8	179		
1.2	1.35	2.95	6.65	16.2	33.8	53.9	212		
1.3	1.63	3.59	7.93	19.5	40.2	63.8	248		
1.4	1.99	4.4	9.65	23.3	47.1	76.2	295		
1.5	2.44	5.23	11.6	28.1	56.7	91.4	352		
1.6	2.88	6.13	13.3	32.7	66.5	109	416		
1.7	3.31	6.94							
1.8	3.74	7.81							
1.9	4.23	8.93							

Typical peak magnetic polarisation (magnetisation curve) 典型磁极化峰值（磁极化曲线）

Hpeak H峰值 (A/m)	Typical peak magnetic polarisation, Jpeak 典型磁极化峰值, J峰值(T)								
	50 Hz	100 Hz	200 Hz	400 Hz	700 Hz	1000 Hz	2500 Hz	5000 Hz	10000 Hz
20	0.028	0.027	0.026	0.025	0.024	0.024	0.024	0.019	0.018
30	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.03	0.03
50	0.34	0.33	0.3	0.26	0.22	0.2	0.14	0.09	0.07
70	0.72	0.7	0.67	0.62	0.51	0.45	0.27	0.18	0.12
100	0.99	0.99	0.95	0.93	0.9	0.82	0.52	0.31	0.2
150	1.18	1.17	1.16	1.16	1.14	1.12	0.9	0.58	0.36
200	1.26	1.26	1.25	1.24	1.23	1.23	1.12	0.85	0.54
400	1.38	1.38	1.38	1.38	1.38	1.37	1.36	1.23	1.08
800	1.46	1.46	1.46	1.46	1.46	1.45	1.45	1.39	
1500	1.52	1.52	1.52	1.52	1.52	1.52	1.52		
2500	1.58	1.58	1.58	1.58	1.58	1.58	1.58		
5000	1.67	1.67	1.67	1.67	1.67				
7500	1.74	1.74							
10000	1.8	1.8							
20000	1.91	1.91							

NO18-1280N Data sheet数据表

thin non-oriented electrical steel
极薄无取向电工钢

The Cogent Hi-Lite grade NO18-1280N fulfils all requirements in the standards EN 10303:2015 and IEC 60404-8-8:2017. In many cases the minimum / maximum properties are better than those of the grades with the same nominal thickness in these standards.

Cogent Hi-Lite NO18-1280N牌号符合EN 10303：2015和IEC 60404-8-8：2017标准中的所有要求。 在许多情况下，最小/最大性能优于上述标准中相同牌号标称厚度的等级。

Magnetic properties 磁性

	Min / Max values 最小值/最大值	Typical values 典型值
Specific total loss特定总铁损值 at 1.0 T and 50 Hz	-	0.92 W/kg
Specific total loss特定总铁损值 at 1.5 T and 50 Hz	-	2.34 W/kg
Specific total loss特定总铁损值 at 1.0 T and 400 Hz	Max 12.8 W/kg	11.7 W/kg
Specific total loss特定总铁损值 at 1.5 T and 400 Hz	Max 30.9 W/kg	28.5 W/kg
Specific total loss特定总铁损值 at 1.0 T and 700 Hz	Max 27.5 W/kg	25.4 W/kg
Specific total loss特定总铁损值 at 1.0 T and 2500 Hz	-	171 W/kg
Peak magnetic polarisation磁极化峰值 at 2500 A/m and 50 Hz	Min 1.55 T	1.59 T
Peak magnetic polarisation磁极化峰值 at 5000 A/m and 50 Hz	Min 1.65 T	1.68 T
Peak magnetic polarisation磁极化峰值 at 10000 A/m and 50 Hz	Min 1.77 T	1.81 T
Relative peak permeability相对峰值渗透率 at 1.5 T and 50 Hz	-	1020
Relative peak permeability相对峰值渗透率 at 1.0 T and 400 Hz	-	7500

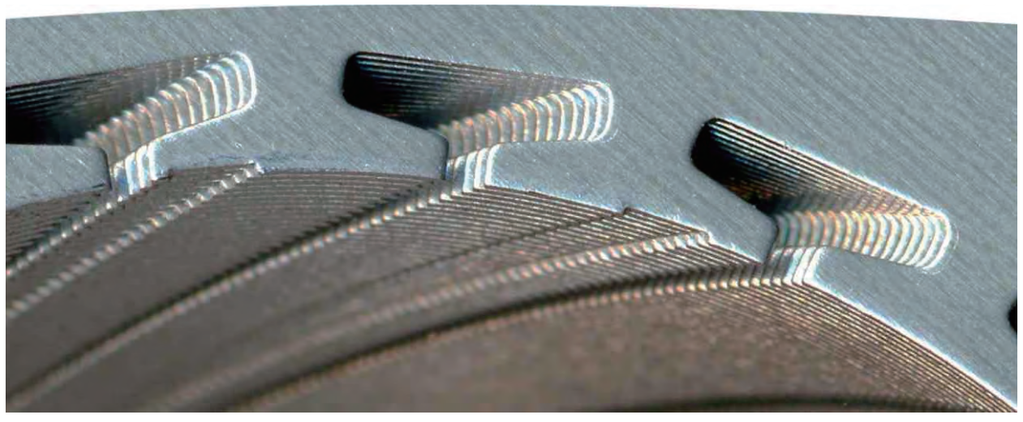
Guaranteed values for losses are maximum total specific losses and guaranteed values for magnetic polarisations are minimum peak polarisations.
保证铁损值是最大特定总损耗，磁极化的保证值是最小磁极化峰值。

Physical and mechanical properties 物理和机械性能

Nominal thickness 0.18 mm
Density (assumed) 7.65 kg/dm³
厚度 0.18mm
密度（假设） 7.65 kg / dm³

	Min / Max values 最小值/最大值	Typical values 典型值
Electrical resistivity at 23 °C 在23 °C的电阻率	-	51 μΩ·cm
Thermal conductivity at 23 °C 在23 °C的导热系数	-	23 W/(m·K)
Thermal expansion热膨胀 0-100 °C	-	$12 \cdot 10^{-6}$ /°C
Yield strength 屈服强度$R_{p0.2}$	Min 330 MPa	370 MPa
Tensile strength抗拉强度 R_m	Min 430 MPa	470 MPa
Elongation at fracture 断裂伸长率A_{80}	Min 14 %	19%
Young's modulus杨氏模量	-	190 GPa

Values for the yield strength, tensile strength and Young's modulus are given for the rolling direction. Corresponding values for the transverse direction are approximately 2 % higher.
屈服强度、拉伸强度和杨氏模量的值是针对轧制方向给出的。 横向轧制的相应值大约高2%。



Typical specific total loss 典型特定总铁损值

Jpeak J峰值 (T)	Typical specific total loss 典型特定总铁损值 (W/kg)								
	50 Hz	100 Hz	200 Hz	400 Hz	700 Hz	1000 Hz	2500 Hz	5000 Hz	10000 Hz
0.1	0.02	0.04	0.08	0.19	0.43	0.68	2.47	7.69	23.9
0.2	0.07	0.15	0.32	0.74	1.55	2.54	9.51	28.5	84.8
0.3	0.14	0.3	0.65	1.54	3.16	5.24	20.1	59.3	174
0.4	0.22	0.47	1.06	2.52	5.24	8.71	33.5	98.2	290
0.5	0.31	0.67	1.53	3.67	7.67	12.7	49.5	145	434
0.6	0.41	0.88	2.05	4.96	10.4	17.4	68	201	
0.7	0.52	1.11	2.62	6.39	13.5	22.6	89.1	265	
0.8	0.63	1.38	3.26	7.98	16.9	28.4	113	340	
0.9	0.77	1.66	3.96	9.75	21.2	35.2	140	428	
1	0.92	1.99	4.73	11.7	25.4	42.1	171		
1.1	1.09	2.37	5.63	13.8	30.2	50.6	206		
1.2	1.3	2.82	6.67	16.4	35.7	59.8	246		
1.3	1.57	3.45	7.97	19.5	42.2	70.6	293		
1.4	1.91	4.21	9.73	23.5	50.4	84	349		
1.5	2.34	5.03	11.7	28.5	60.6	101	416		
1.6	2.79	5.97	13.4	33.6	71.5	119	492		
1.7	3.23	6.79							
1.8	3.67	7.69							
1.9	4.17	8.75							

Typical peak magnetic polarisation (magnetisation curve) 典型磁极化峰值（磁极化曲线）

Hpeak H峰值 (A/m)	Typical peak magnetic polarisation, Jpeak 典型磁极化峰值, J峰值(T)								
	50 Hz	100 Hz	200 Hz	400 Hz	700 Hz	1000 Hz	2500 Hz	5000 Hz	10000 Hz
20	0.032	0.03	0.029	0.028	0.027	0.027	0.027	0.02	0.019
30	0.07	0.07	0.06	0.06	0.05	0.05	0.05	0.03	0.03
50	0.38	0.37	0.33	0.27	0.22	0.19	0.14	0.07	0.06
70	0.77	0.75	0.7	0.63	0.47	0.41	0.24	0.16	0.09
100	1.04	1.03	0.98	0.96	0.9	0.77	0.43	0.25	0.16
150	1.21	1.2	1.19	1.18	1.15	1.13	0.81	0.47	0.29
200	1.28	1.28	1.28	1.26	1.25	1.25	1.11	0.71	0.43
400	1.4	1.4	1.4	1.39	1.39	1.39	1.37	1.18	1.03
800	1.47	1.47	1.47	1.46	1.46	1.46	1.45	1.37	
1500	1.53	1.53	1.53	1.53	1.53	1.53	1.52		
2500	1.59	1.59	1.59	1.59	1.59	1.59	1.59		
5000	1.68	1.68	1.68	1.68	1.68				
7500	1.75	1.75							
10000	1.81	1.81							
20000	1.91	1.91							

NO18-1160H Data sheet数据表

thin non-oriented electrical steel
极薄无取向电工钢

The Cogent Hi-Lite grade NO18-1160H is made according to the standards EN 10303:2015 and IEC 60404-8-8:2017, although the nominal thickness of this grade does not appear in anyone of these standards.

Cogent Hi-Lite NO18-1160H牌号按照EN 10303：2015和IEC 60404-8-8：2017标准制造，但该牌号的标称厚度未体现在这两个标准中。

Magnetic properties 磁性

	Min / Max values 最小值/最大值	Typical values 典型值
Specific total loss特定总铁损值 at 1.0 T and 50 Hz	-	0.83 W/kg
Specific total loss特定总铁损值 at 1.5 T and 50 Hz	-	2.12 W/kg
Specific total loss特定总铁损值 at 1.0 T and 400 Hz	Max 11.6 W/kg	10.6 W/kg
Specific total loss特定总铁损值 at 1.5 T and 400 Hz	-	26.9 W/kg
Specific total loss特定总铁损值 at 1.0 T and 700 Hz	-	23.5 W/kg
Specific total loss特定总铁损值 at 1.0 T and 2500 Hz	Max 172 W/kg	157 W/kg
Peak magnetic polarisation磁极化峰值 at 2500 A/m and 50 Hz	Min 1.51 T	1.54 T
Peak magnetic polarisation磁极化峰值 at 5000 A/m and 50 Hz	Min 1.61 T	1.64 T
Peak magnetic polarisation磁极化峰值 at 10000 A/m and 50 Hz	Min 1.74 T	1.76 T
Relative peak permeability相对峰值渗透率 at 1.5 T and 50 Hz	-	700
Relative peak permeability相对峰值渗透率 at 1.0 T and 400 Hz	-	7970

Guaranteed values for losses are maximum total specific losses and guaranteed values for magnetic polarisations are minimum peak polarisations.
保证铁损值是最大特定总损耗，磁极化的保证值是最小磁极化峰值。

Physical and mechanical properties 物理和机械性能

Nominal thickness 0.18 mm
Density (assumed) 7.60 kg/dm³
厚度 0.18 mm
密度（假设） 7.60 kg / dm³

	Min / Max values 最小值/最大值	Typical values 典型值
Electrical resistivity at 23 °C在23 °C的电阻率	-	59 μΩ·cm
Thermal conductivity at 23 °C在23 °C的导热系数	-	21 W/(m·K)
Thermal expansion热膨胀 0-100 °C	-	$12 \cdot 10^{-6}$ /°C
Yield strength屈服强度 $R_{p0.2}$	Min 395 MPa	445 MPa
Tensile strength抗拉强度 R_m	Min 495 MPa	535 MPa
Elongation at fracture断裂伸长率 A_{80}	Min 12 %	17%
Young's modulus杨氏模量	-	185 GPa

Values for the yield strength, tensile strength and Young's modulus are given for the rolling direction. Corresponding values for the transverse direction are approximately 2 % higher.
屈服强度、拉伸强度和杨氏模量的值是针对轧制方向给出的。 横向轧制的相应值大约高2%。

Typical specific total loss 典型特定总铁损值

Jpeak J峰值 (T)	Typical specific total loss 典型特定总铁损值 (W/kg)								
	50 Hz	100 Hz	200 Hz	400 Hz	700 Hz	1000 Hz	2500 Hz	5000 Hz	10000 Hz
0.1	0.02	0.03	0.07	0.16	0.34	0.57	2.15	7.02	21.4
0.2	0.06	0.12	0.27	0.63	1.34	2.21	8.39	24.9	73.8
0.3	0.12	0.25	0.57	1.31	2.82	4.64	17.9	51.4	153
0.4	0.18	0.41	0.92	2.18	4.72	7.75	29.9	85.8	256
0.5	0.26	0.58	1.35	3.19	6.96	11.5	44.4	128	383
0.6	0.34	0.78	1.83	4.35	9.55	15.8	61.4	178	
0.7	0.44	1	2.34	5.65	12.5	20.7	80.9	237	
0.8	0.56	1.24	2.94	7.13	15.7	26.2	103	305	
0.9	0.68	1.52	3.61	8.77	19.4	31.8	128		
1	0.83	1.84	4.33	10.6	23.5	39.2	157		
1.1	1.01	2.19	5.14	12.8	28	46.8	190		
1.2	1.21	2.64	6.21	15.2	33.3	55.7	228		
1.3	1.47	3.17	7.4	18.4	40	66.6	273		
1.4	1.78	3.91	8.95	22.5	48.3	80.3	327		
1.5	2.12	4.63	10.7	26.9	57.4	95.5			
1.6	2.43	5.24	12.2	30.6	65.9	110			
1.7	2.71	5.78							
1.8	3.06	6.41							
1.9	3.52	7.35							

Typical peak magnetic polarisation (magnetisation curve)
典型磁极化峰值（磁极化曲线）

Hpeak H峰值 (A/m)	Typical peak magnetic polarisation, Jpeak 典型磁极化峰值, J峰值(T)								
	50 Hz	100 Hz	200 Hz	400 Hz	700 Hz	1000 Hz	2500 Hz	5000 Hz	10000 Hz
20	0.065	0.063	0.064	0.064	0.061	0.061	0.059	0.047	0.044
30	0.18	0.17	0.17	0.17	0.15	0.14	0.12	0.07	0.056
50	0.58	0.57	0.54	0.44	0.34	0.28	0.18	0.12	0.08
70	0.83	0.83	0.8	0.76	0.65	0.53	0.29	0.18	0.11
100	1.03	1.03	1.02	1	0.97	0.92	0.53	0.32	0.2
150	1.18	1.18	1.17	1.17	1.16	1.15	0.93	0.6	0.36
200	1.24	1.24	1.24	1.24	1.24	1.23	1.16	0.79	0.52
400	1.36	1.36	1.36	1.36	1.36	1.36	1.33	1.18	0.97
800	1.43	1.43	1.43	1.43	1.43	1.43	1.42		
1500	1.49	1.49	1.49	1.49	1.49	1.49			
2500	1.54	1.54	1.54	1.54	1.54	1.54			
5000	1.64	1.64	1.64	1.64	1.64	1.64			
7500	1.71	1.71							
10000	1.76	1.76							
20000	1.88	1.88							

NO20-1200H Data sheet数据表
thin non-oriented electrical steel
极薄无取向电工钢

The Cogent Hi-Lite grade NO20-1200H fulfils all requirements in the standards EN 10303:2015 and IEC 60404-8-8:2017. In many cases the minimum / maximum properties are better than those of the grades with the same nominal thickness in these standards.

Cogent Hi-Lite NO20-1200H牌号符合EN 10303：2015和IEC 60404-8-8：2017标准中的所有要求。 在许多情况下，最小/最大性能优于上述标准中相同牌号标称厚度的等级。

Magnetic properties 磁性

	Min / Max values 最小值/最大值	Typical values 典型值
Specific total loss特定总铁损值 at 1.0 T and 50 Hz	-	0.80 W/kg
Specific total loss特定总铁损值 at 1.5 T and 50 Hz	-	2.02 W/kg
Specific total loss特定总铁损值 at 1.0 T and 400 Hz	Max 12.0 W/kg	11.2 W/kg
Specific total loss特定总铁损值 at 1.5 T and 400 Hz	Max 30.0 W/kg	28.0 W/kg
Specific total loss特定总铁损值 at 1.0 T and 700 Hz	Max 27.5 W/kg	24.9 W/kg
Specific total loss特定总铁损值 at 1.0 T and 2500 Hz	-	175 W/kg
Peak magnetic polarisation磁极化峰值 at 2500 A/m and 50 Hz	Min 1.52 T	1.55 T
Peak magnetic polarisation磁极化峰值 at 5000 A/m and 50 Hz	Min 1.62 T	1.64 T
Peak magnetic polarisation磁极化峰值 at 10000 A/m and 50 Hz	Min 1.74 T	1.76 T
Relative peak permeability相对峰值渗透率 at 1.5 T and 50 Hz	-	740
Relative peak permeability相对峰值渗透率 at 1.0 T and 400 Hz	-	7900

Guaranteed values for losses are maximum total specific losses and guaranteed values for magnetic olarisations are minimum peak polarisations.
保证铁损值是最大特定总损耗，磁极化的保证值是最小磁极化峰值。

Physical and mechanical properties 物理和机械性能

Nominal thickness 0.20 mm
Density (assumed) 7.60 kg/dm³
厚度 0.20 mm
密度（假设） 7.60 kg / dm³

	Min / Max values 最小值/最大值	Typical values 典型值
Electrical resistivity at 23 °C 在23 °C的电阻率	-	59 μΩ·cm
Thermal conductivity at 23 °C 在23 °C的导热系数	-	21 W/(m·K)
Thermal expansion热膨胀 0-100 °C	-	$12 \cdot 10^{-6}$ /°C
Yield strength 屈服强度$R_{p0.2}$	Min 395 MPa	445 MPa
Tensile strength抗拉强度 R_m	Min 495 MPa	535 MPa
Elongation at fracture 断裂伸长率A_{80}	Min 12 %	17%
Young's modulus杨氏模量	-	185 GPa

Values for the yield strength, tensile strength and Young's modulus are given for the rolling direction. Corresponding values for the transverse direction are approximately 2 % higher.
屈服强度、拉伸强度和杨氏模量的值是针对轧制方向给出的。 横向轧制的相应值大约高2%。

Typical specific total loss 典型特定总铁损值

Jpeak J峰值 (T)	Typical specific total loss 典型特定总铁损值 (W/kg)								
	50 Hz	100 Hz	200 Hz	400 Hz	700 Hz	1000 Hz	2500 Hz	5000 Hz	10000 Hz
0.1	0.02	0.03	0.07	0.16	0.37	0.64	2.57	8.17	24.3
0.2	0.06	0.12	0.27	0.66	1.45	2.42	9.61	28.4	83.8
0.3	0.11	0.25	0.57	1.39	3.03	5.06	20	58.3	172
0.4	0.18	0.4	0.93	2.31	5.04	8.38	33.1	96.9	287
0.5	0.25	0.57	1.36	3.41	7.41	12.4	49.1	145	432
0.6	0.34	0.76	1.85	4.64	10.2	17.1	67.7	201	
0.7	0.44	0.98	2.38	6.05	13.3	22.4	89.3	268	
0.8	0.54	1.23	2.97	7.6	16.8	28.3	114	347	
0.9	0.66	1.5	3.63	9.32	20.6	35	142	441	
1	0.8	1.81	4.37	11.2	24.9	42.4	175		
1.1	0.96	2.16	5.22	13.4	29.7	50.7	212		
1.2	1.15	2.59	6.24	16.1	35.3	60.2	256		
1.3	1.4	3.13	7.47	19.6	42	71.5	307		
1.4	1.69	3.83	9.09	23.5	50.4	85.7	368		
1.5	2.02	4.53	10.8	28	59.9	102			
1.6	2.33	5.19	12.2	31.9	68.9	117			
1.7	2.6	5.75							
1.8	2.91	6.37							
1.9	3.32	7.21							

Typical peak magnetic polarisation (magnetisation curve) 典型磁极化峰值（磁极化曲线）

Hpeak H峰值 (A/m)	Typical peak magnetic polarisation, Jpeak 典型磁极化峰值, J峰值(T)								
	50 Hz	100 Hz	200 Hz	400 Hz	700 Hz	1000 Hz	2500 Hz	5000 Hz	10000 Hz
20	0.076	0.073	0.073	0.073	0.069	0.066	0.058	0.041	0.032
30	0.19	0.18	0.18	0.17	0.13	0.1	0.078	0.053	0.04
50	0.59	0.58	0.52	0.42	0.3	0.24	0.15	0.093	0.063
70	0.84	0.83	0.8	0.74	0.6	0.47	0.25	0.16	0.1
100	1.04	1.04	1.02	1	0.95	0.84	0.45	0.27	0.17
150	1.19	1.19	1.18	1.18	1.16	1.15	0.8	0.5	0.3
200	1.26	1.26	1.25	1.25	1.24	1.24	1.05	0.7	0.45
400	1.36	1.36	1.36	1.36	1.36	1.36	1.3	1.09	0.85
800	1.43	1.43	1.43	1.43	1.43	1.43	1.4		
1500	1.49	1.49	1.49	1.49	1.49	1.49			
2500	1.55	1.55	1.55	1.55	1.55	1.55			
5000	1.64	1.64	1.64	1.64	1.64	1.64			
7500	1.71	1.71							
10000	1.76	1.76							
20000	1.88	1.88							

NO20-1350N Data sheet数据表

thin non-oriented electrical steel
极薄无取向电工钢

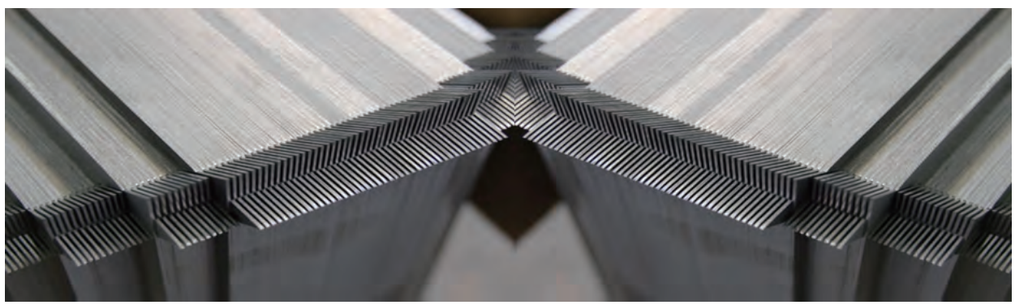
The Cogent Hi-Lite grade NO20-1350N fulfils all requirements in the standards EN 10303:2015 and IEC 60404-8-8:2017. In many cases the minimum / maximum properties are better than those of the grades with the same nominal thickness in these standards.

Cogent Hi-Lite NO20-1350N牌号符合EN 10303：2015和IEC 60404-8-8：2017标准中的所有要求。 在许多情况下，最小/最大性能优于上述标准中相同牌号标称厚度的等级。

Magnetic properties 磁性

	Min / Max values 最小值/最大值	Typical values 典型值
Specific total loss特定总铁损值 at 1.0 T and 50 Hz	-	0.85 W/kg
Specific total loss特定总铁损值 at 1.5 T and 50 Hz	-	2.24 W/kg
Specific total loss特定总铁损值 at 1.0 T and 400 Hz	Max 13.5 W/kg	12.1 W/kg
Specific total loss特定总铁损值 at 1.5 T and 400 Hz	Max 32.5 W/kg	30.1 W/kg
Specific total loss特定总铁损值 at 1.0 T and 700 Hz	Max 29.1 W/kg	27.0 W/kg
Specific total loss特定总铁损值 at 1.0 T and 2500 Hz	-	188 W/kg
Peak magnetic polarisation磁极化峰值 at 2500 A/m and 50 Hz	Min 1.55 T	1.58 T
Peak magnetic polarisation磁极化峰值 at 5000 A/m and 50 Hz	Min 1.65 T	1.68 T
Peak magnetic polarisation磁极化峰值 at 10000 A/m and 50 Hz	Min 1.77 T	1.81 T
Relative peak permeability相对峰值渗透率 at 1.5 T and 50 Hz	-	900
Relative peak permeability相对峰值渗透率 at 1.0 T and 400 Hz	-	7500

Guaranteed values for losses are maximum total specific losses and guaranteed values for magnetic olarisations are minimum peak polarisations.
保证铁损值是最大特定总损耗，磁极化的保证值是最小磁极化峰值。



Physical and mechanical properties 物理和机械性能

Nominal thickness 0.20 mm
Density (assumed) 7.65 kg/dm³
厚度 0.20 mm
密度（假设） 7.65 kg / dm³

	Min / Max values 最小值/最大值	Typical values 典型值
Electrical resistivity at 23 °C 在23 °C的电阻率	-	51 μΩ·cm
Thermal conductivity at 23 °C 在23 °C的导热系数	-	23 W/(m·K)
Thermal expansion热膨胀 0-100 °C	-	$12 \cdot 10^{-6}$ /°C
Yield strength 屈服强度$R_{p0.2}$	Min 320 MPa	360 MPa
Tensile strength抗拉强度 R_m	Min 410 MPa	450 MPa
Elongation at fracture 断裂伸长率A_{80}	Min 14 %	19%
Young's modulus杨氏模量	-	190 GPa

Values for the yield strength, tensile strength and Young's modulus are given for the rolling direction. Corresponding values for the transverse direction are approximately 2 % higher.
屈服强度、拉伸强度和杨氏模量的值是针对轧制方向给出的。 横向轧制的相应值大约高2%。

Typical specific total loss 典型特定总铁损值

Jpeak J峰值 (T)	Typical specific total loss 典型特定总铁损值 (W/kg)								
	50 Hz	100 Hz	200 Hz	400 Hz	700 Hz	1000 Hz	2500 Hz	5000 Hz	10000 Hz
0.1	0.02	0.04	0.09	0.21	0.45	0.77	3.01	8.83	25
0.2	0.06	0.14	0.31	0.76	1.65	2.78	10.7	31.1	90
0.3	0.12	0.28	0.63	1.56	3.38	5.63	22	63.1	186
0.4	0.19	0.44	1.02	2.56	5.54	9.26	36.1	105	311
0.5	0.28	0.62	1.47	3.72	8.14	13.6	53.1	156	467
0.6	0.37	0.82	1.99	5.06	11.1	18.6	73.2	216	
0.7	0.47	1.06	2.56	6.56	14.4	24.2	96.2	288	
0.8	0.58	1.31	3.2	8.23	18.2	30.6	123	373	
0.9	0.71	1.6	3.9	10.1	22.3	37.7	153	473	
1	0.85	1.93	4.7	12.1	27	45.7	188		
1.1	1.02	2.31	5.61	14.4	32.2	54.7	228		
1.2	1.23	2.77	6.69	17.2	38.2	65.3	276		
1.3	1.49	3.35	8.07	20.5	45.5	77.3	332		
1.4	1.84	4.14	9.87	25	55	93.2			
1.5	2.24	4.98	11.9	30.1	66	112			
1.6	2.61	5.82	13.7	34.6	76.3	129			
1.7	2.99	6.54							
1.8	3.37	7.41							
1.9	3.86	8.53							

Typical peak magnetic polarisation (magnetisation curve) 典型磁极化峰值（磁极化曲线）

Hpeak H峰值 (A/m)	Typical peak magnetic polarisation, Jpeak 典型磁极化峰值, J峰值(T)								
	50 Hz	100 Hz	200 Hz	400 Hz	700 Hz	1000 Hz	2500 Hz	5000 Hz	10000 Hz
20	0.041	0.04	0.038	0.036	0.034	0.032	0.031	0.024	0.024
30	0.12	0.12	0.11	0.1	0.09	0.08	0.07	0.04	0.03
50	0.56	0.53	0.47	0.36	0.26	0.21	0.14	0.09	0.06
70	0.86	0.82	0.78	0.65	0.5	0.42	0.22	0.14	0.1
100	1.06	1.04	1	0.96	0.88	0.77	0.4	0.24	0.16
150	1.21	1.2	1.18	1.17	1.13	1.11	0.75	0.46	0.27
200	1.28	1.28	1.27	1.25	1.24	1.24	1.02	0.67	0.4
400	1.38	1.38	1.38	1.37	1.37	1.37	1.33	1.1	0.92
800	1.45	1.45	1.45	1.45	1.45	1.45	1.42	1.32	
1500	1.52	1.52	1.52	1.52	1.52	1.52	1.5		
2500	1.58	1.58	1.58	1.58	1.58	1.58	1.57		
5000	1.68	1.68	1.68	1.68	1.68				
7500	1.75	1.75							
10000	1.81	1.81							
20000	1.92	1.92							

NO25-1350H Data sheet数据表

thin non-oriented electrical steel
极薄无取向电工钢

The Cogent Hi-Lite grade NO25-1350H fulfils all requirements in the standards EN 10303:2015 and IEC 60404-8-8:2017. In many cases the minimum / maximum properties are better than those of the grades with the same nominal thickness in these standards.

Cogent Hi-Lite NO25-1350H牌号符合EN 10303：2015和IEC 60404-8-8：2017标准中的所有要求。 在许多情况下，最小/最大性能优于上述标准中相同牌号厚度的等级。

Magnetic properties 磁性

	Min / Max values 最小值/最大值	Typical values 典型值
Specific total loss特定总铁损值 at 1.0 T and 50 Hz	-	0.80 W/kg
Specific total loss特定总铁损值 at 1.5 T and 50 Hz	-	2.00 W/kg
Specific total loss特定总铁损值 at 1.0 T and 400 Hz	Max 13.5 W/kg	12.5 W/kg
Specific total loss特定总铁损值 at 1.5 T and 400 Hz	Max 32.5 W/kg	29.9 W/kg
Specific total loss特定总铁损值 at 1.0 T and 700 Hz	Max 31.5 W/kg	28.7 W/kg
Specific total loss特定总铁损值 at 1.0 T and 2500 Hz	-	214 W/kg
Peak magnetic polarisation磁极化峰值 at 2500 A/m and 50 Hz	Min 1.52 T	1.55 T
Peak magnetic polarisation磁极化峰值 at 5000 A/m and 50 Hz	Min 1.62 T	1.64 T
Peak magnetic polarisation磁极化峰值 at 10000 A/m and 50 Hz	Min 1.74 T	1.77 T
Relative peak permeability相对峰值渗透率 at 1.5 T and 50 Hz	-	740
Relative peak permeability相对峰值渗透率 at 1.0 T and 400 Hz	-	7600

Guaranteed values for losses are maximum total specific losses and guaranteed values for magnetic polarisations are minimum peak polarisations.
保证铁损值是最大特定总损耗，磁极化的保证值是最小磁极化峰值。

Physical and mechanical properties 物理和机械性能

Nominal thickness 0.25 mm
Density (assumed) 7.60 kg/dm³
厚度 0.25 mm
密度（假设） 7.60 kg / dm³

	Min / Max values 最小值/最大值	Typical values 典型值
Electrical resistivity at 23 °C在23 °C的电阻率	-	59 μΩ·cm
Thermal conductivity at 23 °C在23 °C的导热系数	-	21 W/(m·K)
Thermal expansion热膨胀 0-100 °C	-	$12 \cdot 10^{-6}$ /°C
Yield strength屈服强度 $R_{p0.2}$	Min 400 MPa	445 MPa
Tensile strength抗拉强度 R_m	Min 500 MPa	535 MPa
Elongation at fracture断裂伸长率 A_{80}	Min 12 %	17%
Young's modulus杨氏模量	-	185 GPa

Values for the yield strength, tensile strength and Young's modulus are given for the rolling direction. Corresponding values for the transverse direction are approximately 2 % higher.
屈服强度、拉伸强度和杨氏模量的值是针对轧制方向给出的。 横向轧制的相应值大约高2%。

Typical specific total loss 典型特定总铁损值

Jpeak J峰值 (T)	Typical specific total loss 典型特定总铁损值 (W/kg)								
	50 Hz	100 Hz	200 Hz	400 Hz	700 Hz	1000 Hz	2500 Hz	5000 Hz	10000 Hz
0.1	0.01	0.03	0.07	0.19	0.43	0.74	3.12	9.62	29.6
0.2	0.06	0.13	0.29	0.73	1.62	2.75	11.2	33.7	99.3
0.3	0.11	0.26	0.61	1.53	3.39	5.73	23.1	69	204
0.4	0.18	0.42	1	2.55	5.64	9.5	38.3	115	344
0.5	0.25	0.6	1.46	3.74	8.35	14.1	57	173	
0.6	0.34	0.81	1.98	5.12	11.5	19.5	79.4	244	
0.7	0.43	1.04	2.56	6.68	15.1	25.6	106	330	
0.8	0.54	1.3	3.19	8.42	19.1	32.6	136	434	
0.9	0.66	1.58	3.91	10.3	23.6	40.5	172		
1	0.8	1.9	4.74	12.5	28.7	49.5	214		
1.1	0.95	2.27	5.64	14.9	34.4	59.5	262		
1.2	1.15	2.71	6.67	17.7	40.8	70.9	319		
1.3	1.39	3.25	8.03	21	48.3	84.4	387		
1.4	1.67	3.96	9.62	25.1	57.9	101			
1.5	2	4.65	11.5	29.9	68.7	119			
1.6	2.32	5.3	13	34.4	79	138			
1.7	2.58	5.88							
1.8	2.88	6.53							
1.9	3.31	7.36							

Typical peak magnetic polarisation (magnetisation curve) 典型磁极化峰值（磁极化曲线）

Hpeak H峰值 (A/m)	Typical peak magnetic polarisation, Jpeak 典型磁极化峰值, J峰值(T)								
	50 Hz	100 Hz	200 Hz	400 Hz	700 Hz	1000 Hz	2500 Hz	5000 Hz	10000 Hz
20	0.076	0.074	0.066	0.072	0.068	0.066	0.049	0.034	0.022
30	0.19	0.18	0.16	0.14	0.12	0.1	0.058	0.04	0.029
50	0.59	0.57	0.48	0.36	0.26	0.21	0.12	0.079	0.049
70	0.84	0.83	0.77	0.67	0.49	0.39	0.21	0.13	0.077
100	1.04	1.04	1	0.96	0.83	0.69	0.37	0.22	0.13
150	1.19	1.19	1.18	1.17	1.14	1.07	0.64	0.39	0.24
200	1.26	1.26	1.25	1.25	1.24	1.22	0.86	0.55	0.35
400	1.37	1.37	1.37	1.37	1.36	1.36	1.25	0.97	0.65
800	1.43	1.43	1.43	1.43	1.43	1.43	1.38		
1500	1.49	1.49	1.49	1.49	1.49	1.49			
2500	1.55	1.55	1.55	1.55	1.55	1.55			
5000	1.64	1.64	1.64	1.64	1.64	1.64			
7500	1.71	1.71							
10000	1.77	1.77							
20000	1.89	1.89							

NO27-1450H Data sheet数据表

thin non-oriented electrical steel

极薄无取向电工钢

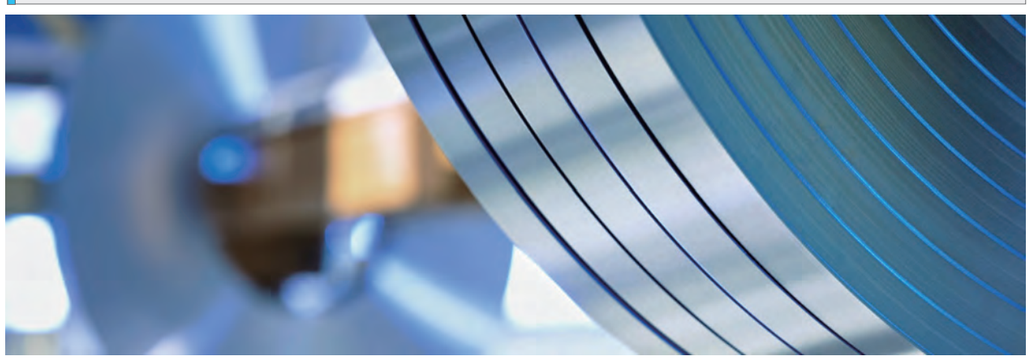
The Cogent Hi-Lite grade NO27-1450H fulfils all requirements in the standards EN 10303:2015 and IEC 60404-8-8:2017. In many cases the minimum / maximum properties are better than those of the grades with the same nominal thickness in these standards.

Cogent Hi-Lite NO27-1450H牌号符合EN 10303：2015和IEC 60404-8-8：2017标准中的所有要求。 在许多情况下，最小/最大性能优于上述标准中相同牌号厚度的等级。

Magnetic properties 磁性

	Min / Max values 最小值/最大值	Typical values 典型值
Specific total loss特定总铁损值 at 1.0 T and 50 Hz	-	0.79 W/kg
Specific total loss特定总铁损值 at 1.5 T and 50 Hz	-	1.99 W/kg
Specific total loss特定总铁损值 at 1.0 T and 400 Hz	Max 14.5 W/kg	13.7 W/kg
Specific total loss特定总铁损值 at 1.5 T and 400 Hz	Max 35.5 W/kg	32.7 W/kg
Specific total loss特定总铁损值 at 1.0 T and 700 Hz	Max 34.4 W/kg	32.0 W/kg
Specific total loss特定总铁损值 at 1.0 T and 2500 Hz	-	250 W/kg
Peak magnetic polarisation磁极化峰值 at 2500 A/m and 50 Hz	Min 1.52 T	1.55 T
Peak magnetic polarisation磁极化峰值 at 5000 A/m and 50 Hz	Min 1.62 T	1.64 T
Peak magnetic polarisation磁极化峰值 at 10000 A/m and 50 Hz	Min 1.74 T	1.77 T
Relative peak permeability相对峰值渗透率 at 1.5 T and 50 Hz	-	750
Relative peak permeability相对峰值渗透率 at 1.0 T and 400 Hz	-	7550

Guaranteed values for losses are maximum total specific losses and guaranteed values for magnetic olarisations are minimum peak polarisations.
保证铁损值是最大特定总损耗，磁极化的保证值是最小磁极化峰值。



Physical and mechanical properties 物理和机械性能

Nominal thickness 0.27 mm
Density (assumed) 7.60 kg/dm³
厚度 0.27 mm
密度（假设） 7.60 kg / dm³

	Min / Max values 最小值/最大值	Typical values 典型值
Electrical resistivity at 23 °C在23 °C的电阻率	-	59 μΩ·cm
Thermal conductivity at 23 °C在23 °C的导热系数	-	21 W/(m·K)
Thermal expansion热膨胀 0-100 °C	-	$12 \cdot 10^{-6}$ /°C
Yield strength屈服强度 $R_{p0.2}$	Min 400 MPa	445 MPa
Tensile strength抗拉强度 R_m	Min 500 MPa	535 MPa
Elongation at fracture断裂伸长率 A_{80}	Min 12 %	17%
Young's modulus杨氏模量	-	185 GPa

Values for the yield strength, tensile strength and Young's modulus are given for the rolling direction. Corresponding values for the transverse direction are approximately 2 % higher.
屈服强度、拉伸强度和杨氏模量的值是针对轧制方向给出的。 横向轧制的相应值大约高2%。

Typical specific total loss 典型特定总铁损值

Jpeak J峰值 (T)	Typical specific total loss 典型特定总铁损值 (W/kg)								
	50 Hz	100 Hz	200 Hz	400 Hz	700 Hz	1000 Hz	2500 Hz	5000 Hz	10000 Hz
0.1	0.01	0.03	0.08	0.2	0.45	0.81	3.49	10.8	32.7
0.2	0.06	0.13	0.3	0.79	1.75	3.03	12.7	37.1	110
0.3	0.11	0.26	0.63	1.66	3.69	6.28	26.1	76.3	228
0.4	0.17	0.43	1.05	2.76	6.17	10.5	43.4	128	386
0.5	0.25	0.61	1.54	4.07	9.16	15.6	64.7	193	
0.6	0.33	0.83	2.09	5.59	12.6	21.7	90.3	274	
0.7	0.43	1.07	2.71	7.29	16.6	28.6	121	374	
0.8	0.53	1.35	3.39	9.21	21.1	36.6	157		
0.9	0.66	1.64	4.17	11.3	26.2	45.6	200		
1	0.79	1.96	5	13.7	32	55.9	250		
1.1	0.95	2.33	5.97	16.4	38.4	67.5	309		
1.2	1.14	2.77	7.06	19.4	45.6	80.7	379		
1.3	1.38	3.3	8.39	23	54	96			
1.4	1.66	4.04	10.1	27.6	64.5	115			
1.5	1.99	4.75	11.9	32.7	76.5	136			
1.6	2.3	5.4	13.6	37.4	88	157			
1.7	2.56	6.05							
1.8	2.86	6.67							
1.9	3.28	7.5							

Typical peak magnetic polarisation (magnetisation curve)
典型磁极化峰值（磁极化曲线）

Hpeak H峰值 (A/m)	Typical peak magnetic polarisation, Jpeak 典型磁极化峰值, J峰值(T)								
	50 Hz	100 Hz	200 Hz	400 Hz	700 Hz	1000 Hz	2500 Hz	5000 Hz	10000 Hz
20	0.076	0.073	0.066	0.071	0.067	0.063	0.044	0.03	0.021
30	0.19	0.17	0.16	0.13	0.11	0.1	0.056	0.042	0.027
50	0.59	0.56	0.48	0.36	0.26	0.2	0.12	0.078	0.047
70	0.85	0.83	0.77	0.63	0.46	0.37	0.19	0.12	0.073
100	1.05	1.04	1.01	0.95	0.76	0.62	0.32	0.2	0.12
150	1.2	1.2	1.18	1.17	1.12	0.96	0.56	0.35	0.21
200	1.26	1.26	1.26	1.25	1.24	1.21	0.75	0.49	0.31
400	1.37	1.37	1.37	1.37	1.36	1.35	1.21	0.89	0.6
800	1.43	1.43	1.43	1.43	1.43	1.43	1.37		
1500	1.49	1.49	1.49	1.49	1.49	1.49			
2500	1.55	1.55	1.55	1.55	1.55	1.55			
5000	1.64	1.64	1.64	1.64	1.64	1.64			
7500	1.71	1.71							
10000	1.77	1.77							
20000	1.89	1.89							

NO30-1500H Data sheet数据表

thin non-oriented electrical steel
极薄无取向电工钢

The Cogent Hi-Lite grade NO30-1500H fulfils all requirements in the standards EN 10303:2015 and IEC 60404-8-8:2017. In many cases the minimum / maximum properties are better than those of the grades with the same nominal thickness in these standards.

Cogent Hi-Lite NO30-1500H牌号符合EN 10303：2015和IEC 60404-8-8：2017标准中的所有要求。 在许多情况下，最小/最大性能优于上述标准中相同牌号厚度的等级。

Magnetic properties 磁性

	Min / Max values 最小值/最大值	Typical values 典型值
Specific total loss特定总铁损值 at 1.0 T and 50 Hz	-	0.82 W/kg
Specific total loss特定总铁损值 at 1.5 T and 50 Hz	-	2.01 W/kg
Specific total loss特定总铁损值 at 1.0 T and 400 Hz	Max 15.0 W/kg	14.1 W/kg
Specific total loss特定总铁损值 at 1.5 T and 400 Hz	Max 37.0 W/kg	34.0 W/kg
Specific total loss特定总铁损值 at 1.0 T and 700 Hz	Max 36.0 W/kg	33.6 W/kg
Specific total loss特定总铁损值 at 1.0 T and 2500 Hz	-	270 W/kg
Peak magnetic polarisation磁极化峰值 at 2500 A/m and 50 Hz	Min 1.52 T	1.55 T
Peak magnetic polarisation磁极化峰值 at 5000 A/m and 50 Hz	Min 1.62 T	1.64 T
Peak magnetic polarisation磁极化峰值 at 10000 A/m and 50 Hz	Min 1.74 T	1.76 T
Relative peak permeability相对峰值渗透率 at 1.5 T and 50 Hz	-	740
Relative peak permeability相对峰值渗透率 at 1.0 T and 400 Hz	-	7400

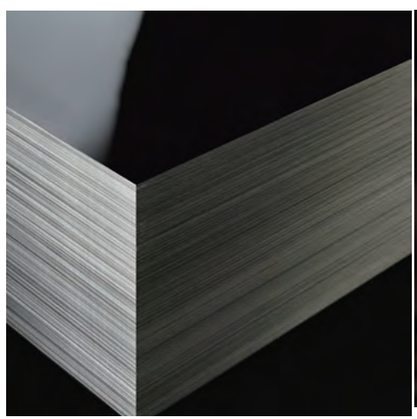
Guaranteed values for losses are maximum total specific losses and guaranteed values for magnetic olarisations are minimum peak polarisations.
保证铁损值是最大特定总损耗，磁极化的保证值是最小磁极化峰值。

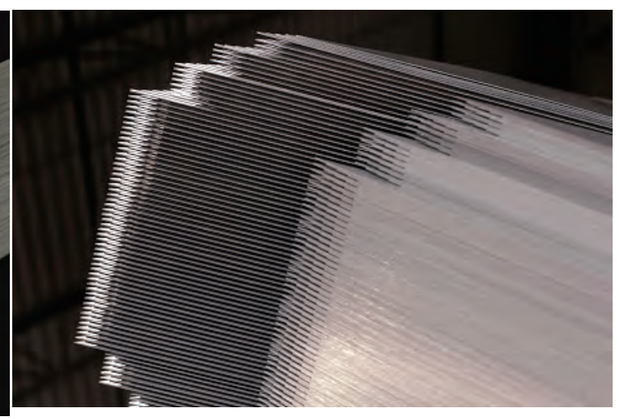
Physical and mechanical properties 物理和机械性能

Nominal thickness 0.30 mm
Density (assumed) 7.60 kg/dm³
厚度 0.30 mm
密度（假设） 7.60 kg / dm³

	Min / Max values 最小值/最大值	Typical values 典型值
Electrical resistivity at 23 °C在23 °C的电阻率	-	59 μΩ·cm
Thermal conductivity at 23 °C在23 °C的导热系数	-	21 W/(m·K)
Thermal expansion热膨胀 0-100 °C	-	$12 \cdot 10^{-6}$ /°C
Yield strength屈服强度 $R_{p0.2}$	Min 400 MPa	445 MPa
Tensile strength抗拉强度 R_m	Min 500 MPa	535 MPa
Elongation at fracture断裂伸长率 A_{80}	Min 12 %	17%
Young's modulus杨氏模量	-	185 GPa

Values for the yield strength, tensile strength and Young's modulus are given for the rolling direction. Corresponding values for the transverse direction are approximately 2 % higher.
屈服强度、拉伸强度和杨氏模量的值是针对轧制方向给出的。 横向轧制的相应值大约高2%。





Typical specific total loss 典型特定总铁损值

Jpeak J峰值 (T)	Typical specific total loss 典型特定总铁损值 (W/kg)								
	50 Hz	100 Hz	200 Hz	400 Hz	700 Hz	1000 Hz	2500 Hz	5000 Hz	10000 Hz
0.1	0.02	0.04	0.08	0.21	0.48	0.86	3.7	11.1	33.4
0.2	0.06	0.13	0.31	0.81	1.83	3.12	13	38.6	113
0.3	0.11	0.27	0.65	1.71	3.83	6.43	26.8	78.6	233
0.4	0.18	0.43	1.08	2.84	6.36	10.7	44.7	132	399
0.5	0.26	0.63	1.58	4.18	9.47	16	67.2	201	
0.6	0.35	0.85	2.15	5.76	13.1	22.2	93.8	288	
0.7	0.45	1.09	2.8	7.52	17.3	29.5	127	397	
0.8	0.56	1.36	3.51	9.47	22	37.8	166	534	
0.9	0.68	1.66	4.31	11.7	27.5	47.5	213		
1	0.82	2	5.17	14.1	33.6	58.6	270		
1.1	0.98	2.38	6.15	17	40.6	71.7	336		
1.2	1.17	2.82	7.29	20.1	48.6	86.7	413		
1.3	1.41	3.37	8.72	24	57.9	104			
1.4	1.69	4.11	10.5	28.8	69.4	125			
1.5	2.01	4.86	12.4	34	81.9	148			
1.6	2.33	5.49	14.1	38.7	93.8	172			
1.7	2.57	6.16							
1.8	2.9	6.8							
1.9	3.32	7.63							

Typical peak magnetic polarisation (magnetisation curve) 典型磁极化峰值（磁极化曲线）

Hpeak H峰值 (A/m)	Typical peak magnetic polarisation, Jpeak 典型磁极化峰值, J峰值(T)								
	50 Hz	100 Hz	200 Hz	400 Hz	700 Hz	1000 Hz	2500 Hz	5000 Hz	10000 Hz
20	0.076	0.073	0.065	0.07	0.066	0.057	0.041	0.028	0.019
30	0.19	0.17	0.15	0.13	0.1	0.091	0.055	0.033	0.025
50	0.59	0.56	0.45	0.32	0.24	0.19	0.1	0.067	0.042
70	0.84	0.82	0.76	0.6	0.43	0.34	0.18	0.11	0.066
100	1.05	1.04	1.01	0.95	0.72	0.59	0.31	0.18	0.11
150	1.19	1.19	1.18	1.17	1.1	0.93	0.55	0.32	0.2
200	1.26	1.26	1.25	1.25	1.24	1.19	0.72	0.47	0.28
400	1.36	1.36	1.36	1.36	1.36	1.34	1.18	0.84	0.55
800	1.43	1.43	1.43	1.43	1.43	1.43	1.33		
1500	1.49	1.49	1.49	1.49	1.49	1.49			
2500	1.55	1.55	1.55	1.55	1.55	1.55			
5000	1.64	1.64	1.64	1.64	1.64	1.64			
7500	1.71	1.71							
10000	1.76	1.76							
20000	1.89	1.89							

NO35-1750H Data sheet数据表

thin non-oriented electrical steel
极薄无取向电工钢

The Cogent Hi-Lite grade NO35-1750H fulfils all requirements in the standards EN 10303:2015 and IEC 60404-8-8:2017. In many cases the minimum / maximum properties are better than those of the grades with the same nominal thickness in these standards.

Cogent Hi-Lite NO35-1750H牌号符合EN 10303：2015和IEC 60404-8-8：2017标准中的所有要求。 在许多情况下，最小/最大性能优于上述标准中相同牌号标称厚度的等级。

Magnetic properties 磁性

	Min / Max values 最小值/最大值	Typical values 典型值
Specific total loss特定总铁损值 at 1.0 T and 50 Hz	-	0.88 W/kg
Specific total loss特定总铁损值 at 1.5 T and 50 Hz	-	2.11 W/kg
Specific total loss特定总铁损值 at 1.0 T and 400 Hz	Max 17.5 W/kg	16.4 W/kg
Specific total loss特定总铁损值 at 1.5 T and 400 Hz	Max 41.7 W/kg	38.8 W/kg
Specific total loss特定总铁损值 at 1.0 T and 700 Hz	Max 42.2 W/kg	39.4 W/kg
Specific total loss特定总铁损值 at 1.0 T and 2500 Hz	-	333 W/kg
Peak magnetic polarisation磁极化峰值 at 2500 A/m and 50 Hz	Min 1.52 T	1.56 T
Peak magnetic polarisation磁极化峰值 at 5000 A/m and 50 Hz	Min 1.62 T	1.65 T
Peak magnetic polarisation磁极化峰值 at 10000 A/m and 50 Hz	Min 1.74 T	1.77 T
Relative peak permeability相对峰值渗透率 at 1.5 T and 50 Hz	-	820
Relative peak permeability相对峰值渗透率 at 1.0 T and 400 Hz	-	6370

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Physical and mechanical properties 物理和机械性能

Nominal thickness 0.35 mm
Density (assumed) 7.60 kg/dm³
厚度 0.35 mm
密度（假设） 7.60 kg / dm³

	Min / Max values 最小值/最大值	Typical values 典型值
Electrical resistivity at 23 °C在23 °C的电阻率	-	59 μΩ·cm
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Elongation at fracture断裂伸长率 A_{80}	Min 12 %	17%
Young's modulus杨氏模量	-	185 GPa

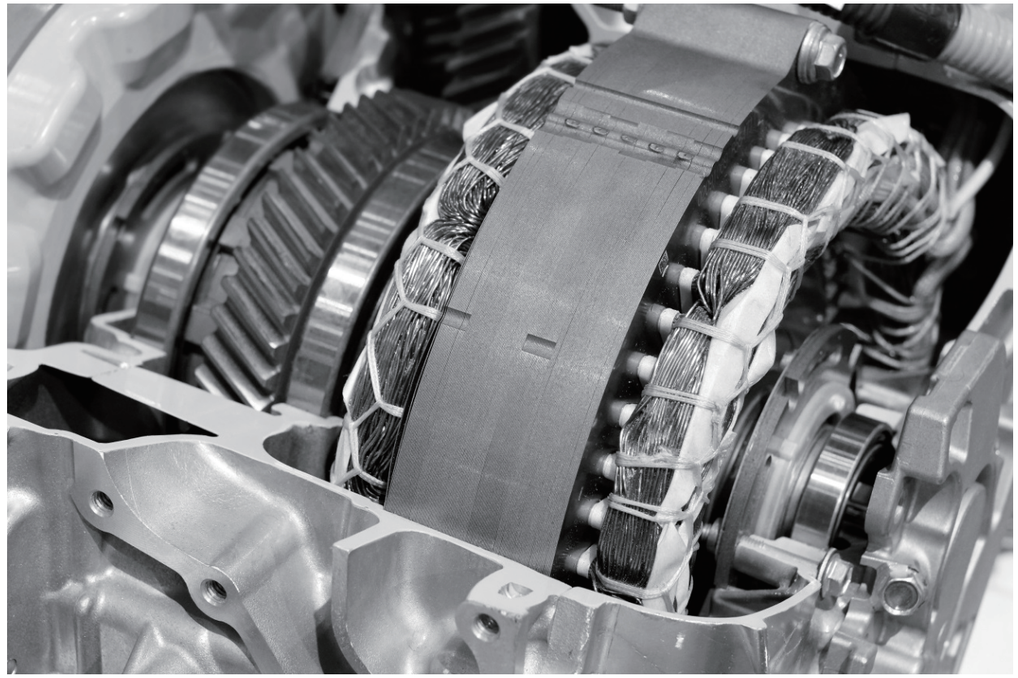
Values for the yield strength, tensile strength and Young's modulus are given for the rolling direction. Corresponding values for the transverse direction are approximately 2 % higher.
屈服强度、拉伸强度和杨氏模量的值是针对轧制方向给出的。 横向轧制的相应值大约高2%。

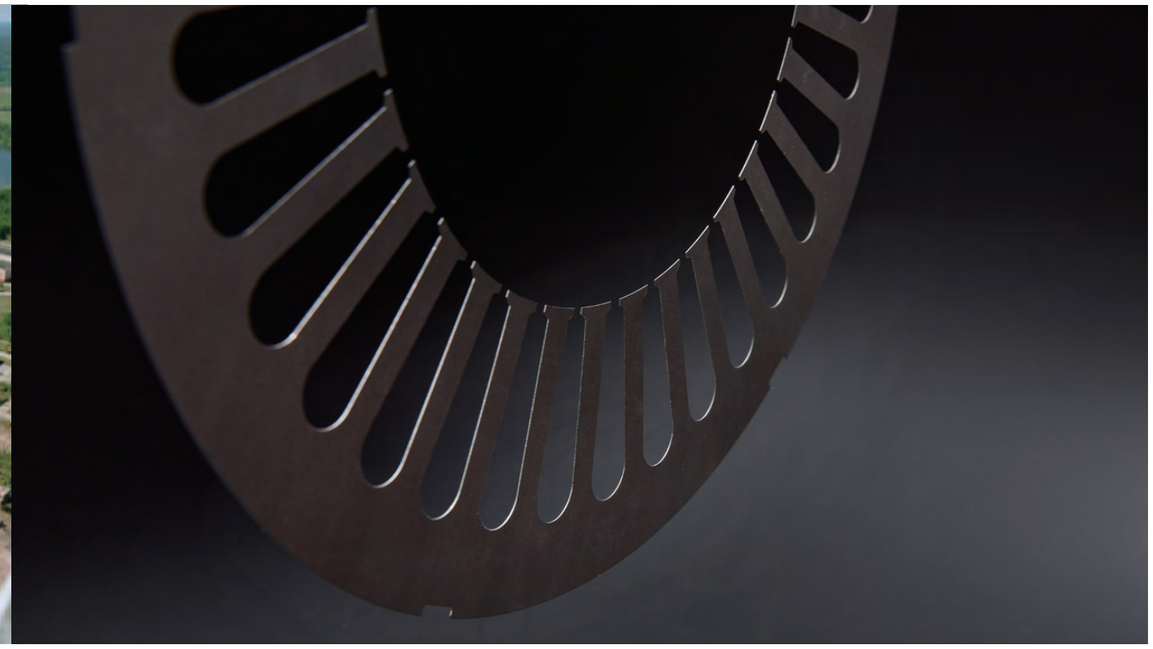
Typical specific total loss 典型特定总铁损值

Jpeak J峰值 (T)	Typical specific total loss 典型特定总铁损值 (W/kg)								
	50 Hz	100 Hz	200 Hz	400 Hz	700 Hz	1000 Hz	2500 Hz	5000 Hz	10000 Hz
0.1	0.02	0.04	0.09	0.24	0.56	1	4.35	13.4	39.6
0.2	0.06	0.14	0.35	0.92	2.12	3.63	15.1	45.2	133
0.3	0.13	0.29	0.73	1.93	4.39	7.49	30.9	92	275
0.4	0.2	0.48	1.21	3.2	7.33	12.5	51.8	156	
0.5	0.29	0.69	1.76	4.73	10.9	18.7	78.1	239	
0.6	0.38	0.93	2.4	6.5	15.1	26	111	349	
0.7	0.49	1.2	3.12	8.54	19.9	34.6	151		
0.8	0.61	1.49	3.93	10.8	25.6	44.6	201		
0.9	0.74	1.81	4.81	13.4	32	56.4	261		
1	0.88	2.17	5.76	16.4	39.4	70	333		
1.1	1.04	2.58	6.85	19.6	47.8	85.8	424		
1.2	1.23	3.04	8.08	23.2	57.4	104			
1.3	1.47	3.61	9.56	27.5	68.5	125			
1.4	1.77	4.34	11.4	32.8	81.4	150			
1.5	2.11	5.15	13.5	38.8	96.6	177			
1.6	2.41	5.85	15.5	44.5	111	204			
1.7	2.68	6.53							
1.8	3.02	7.18							
1.9	3.46	8.07							

Typical peak magnetic polarisation (magnetisation curve) 典型磁极化峰值（磁极化曲线）

Hpeak H峰值 (A/m)	Typical peak magnetic polarisation, Jpeak 典型磁极化峰值, J峰值(T)								
	50 Hz	100 Hz	200 Hz	400 Hz	700 Hz	1000 Hz	2500 Hz	5000 Hz	10000 Hz
20	0.077	0.073	0.064	0.064	0.064	0.055	0.036	0.024	0.016
30	0.19	0.17	0.15	0.12	0.1	0.083	0.051	0.034	0.022
50	0.6	0.54	0.43	0.3	0.22	0.18	0.1	0.063	0.039
70	0.85	0.82	0.72	0.52	0.37	0.3	0.15	0.093	0.057
100	1.06	1.05	1	0.81	0.6	0.48	0.26	0.15	0.09
150	1.21	1.2	1.19	1.16	0.93	0.77	0.44	0.27	0.16
200	1.27	1.27	1.26	1.26	1.19	0.99	0.59	0.38	0.24
400	1.38	1.38	1.37	1.37	1.35	1.31	1.02	0.7	0.48
800	1.44	1.44	1.44	1.44	1.43	1.41	1.31		
1500	1.5	1.5	1.5	1.5	1.5	1.5			
2500	1.56	1.56	1.56	1.56	1.56	1.56			
5000	1.65	1.65	1.65	1.65	1.65	1.65			
7500	1.72	1.72							
10000	1.77	1.77							
20000	1.89	1.89							





瑞典Surahammar电工钢厂

钢客极薄电工钢