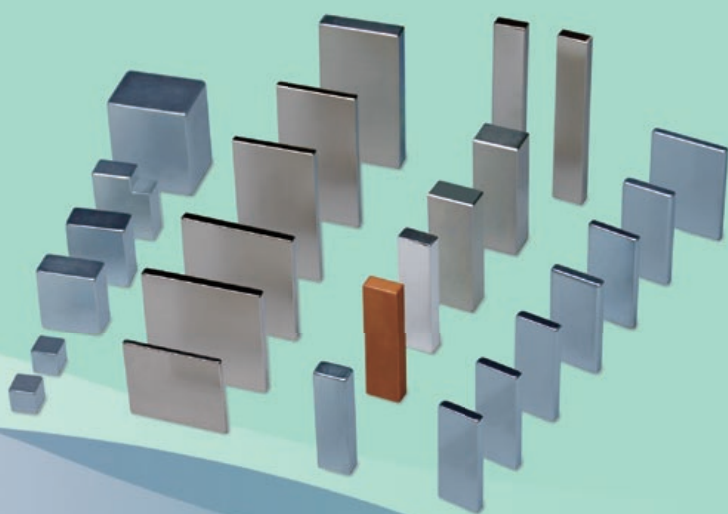




中钢天源

Sinosteel Tianyuan

股票代码: 002057



Professional Manufacturer

NdFeB Magnets

钕铁硼磁材专业制造

中钢天源钕铁硼磁性材料厂

SINOSTEEL TIANYUAN NDFEB MAGNETIC MATERIAL PLANT



生产车间 work site



公司简介 About US

中钢天源钕铁硼磁性材料厂是中钢集团安徽天源科技股份有限公司的二级专业公司，位于长江南岸的马鞍山市，交通便利，距南京仅四十分钟车程。

中钢天源是由中国中钢集团控股的国有上市公司，是一家具有多年从事磁性材料研发、生产与产品应用经验、技术实力雄厚的公司，目前主营业务有稀土钕铁硼磁体、永磁铁氧体磁体、高纯四氧化三锰、永磁电机及各类选矿设备。

公司拥有国内先进的工艺装备和生产技术，凭借优秀的专业技术人员和熟练的操作工人，可年产1000吨烧结钕铁硼磁体，产品质量、性能稳定，并可根据客户需求做各种表面处理。

依托中钢天源“安徽省磁性材料工程中心”技术平台，多名博士、高级工程师领衔的研发团队，先进的TAS-990FG原子吸收光谱仪、X荧光光谱仪(Panalytical AXIOS)、X射线衍射仪(Panalytical X'Pert)等研发设备和磁测仪、赫姆霍茨线圈、JX-2000B显微图像分析仪等生产控制仪器，中钢天源钕铁硼厂一直致力于各类永磁电机用烧结钕铁硼磁体的研发和生产，自主开发的烧结钕铁硼多极磁环居国内领先水平。

中钢天源钕铁硼磁性材料厂本着“致力磁力技术进步，持续满足客户需求”的宗旨，将一如既往以优良的品质和具有竞争力的价格向国内外客户提供各种规格、性能产品的定制。

Sinosteel Tianyuan NdFeB Magnetic Material Plant, a subsidiary of Sinosteel Anhui Tianyuan Technology Co., Ltd., short for SATT, located at Ma'anshan, a city near to Yangtze River and Shanghai Port, and 40 kilometers to Nanjing Lukou International Airport (NKG).

SATT is a state-owned public company controlled by Sinosteel Group and has rich experience on magnets production and research. Currently, the main business includes Neodymium magnets(NdFeB), ferrite magnets, high purity Mn_3O_4 , servo motors and mining separating equipments.

With advantages of domestically advanced equipments, excellent production technics, and the experienced staff, we are capable of annually producing 1,000 tonnes of consistent and high quality sintered NdFeB magnets. We offer customised products with antiseptic surface treatment.

With supports of SATT "Magnetic Materials Engineering Center of Anhui Province", R&D team consisting of PhDs and senior engineers, advanced research instruments, including TAS-990FG Atomic Absorption Spectrometer, AXIOS X-Ray Fluorescence Spectrometer and X'Pert X-Ray Diffractometer, and advanced production process control instruments, including magnetometer, JX-2000B micrograph analyzer, Sinosteel Tianyuan NdFeB Magnetic Material plant endeavour developing and producing sintered NdFeB used in permanent motors. The sintered multi-poles ring magnet we developed holds the leading position in the industry.

Sinosteel Tianyuan NdFeB Magnetic Material Plant driven by technology and insists "pursuing the development of magnet technology, continuous satisfy customer demands". We offer various types of high quality magnets including customised products for all possible clients in a competitive price.

生产能力 Production Capacity

» 烧结钕铁硼工艺流程图

Production Chart of Sintered Neodymium Magnet



年产1000吨高性能烧结钕铁硼磁体
从原料到成品全流程生产线
ISO/TS16949:2009 ISO14001:2004 OHSAS18001:2007认证企业

1000 ton/per high performance sintered Neodymium magnets
The whole process production from raw material to final product
Certificated by ISO/TS16949:2009 ISO14001:2004 OHSAS18001:2007

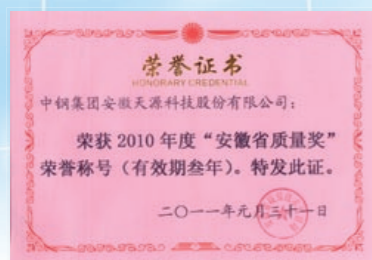


品质管理 Quality Management

依据质量管理体系文件，推行全面质量管理。认真做到“质量无价、人人有责”，保证产品质量稳定、可靠，持续满足客户要求。

In order to provide stable and reliable products and satisfy customers' requirements, SATT NdFeB Plant applies TQM and focuses on fine management, quantitative management and process control according to SATT's QMS documents and corporate spirit, everyone is obliged to ensure priceless quality.

质量方针 Quality Policy



应用领域 / Application



产品介绍 Product Introduction

本厂生产的烧结钕铁硼磁体广泛应用于电机领域：伺服电机、电梯曳引机、空调变频压缩机、风力发电机，新能源汽车电机、步进电机、发电机、无刷马达等。

The sintered Neodymium magnets produced by SATT is mainly used in the motor field, particularly on servo motor, elevator tractor, variable frequency compressor of air conditioner, wind turbine generator, AFV motor, stepper motor, electric generator and brushless motor, etc.



瓦形系列
Segment Series

块形系列
Block Series



环形系列
Ring Series



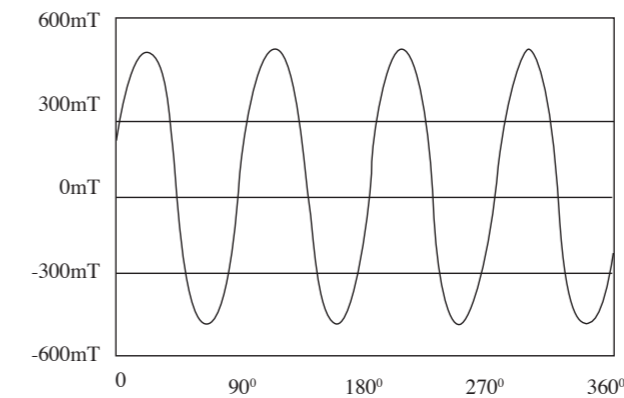
异形系列
Customised Series

径向多极磁环 Radial Multi-poles Ring Magnet

本厂开发的径向多极磁环表面磁通密度高，明显优于传统瓦形磁钢拼装的性能，磁路设计与目前辐射环的磁路设计完全不同。辐射环表面磁场分布呈马鞍形，本厂开发的多极磁环表面磁场分布呈正弦波形，更有利于电机设计。

The radial multi-poles ring magnet developed by SATT has completely innovative design which reaches higher surface magnetic flux density and overmatched the traditional approach of piece several segment magnets together.

Our product has a sinusoidal wave shaped surface magnetic field distribution, is relatively better for motor design than saddle-shape of radiation ring.



径向多极磁环的表面磁场分布

The surface magnetic field distribution of radial multi-poles ring magnet

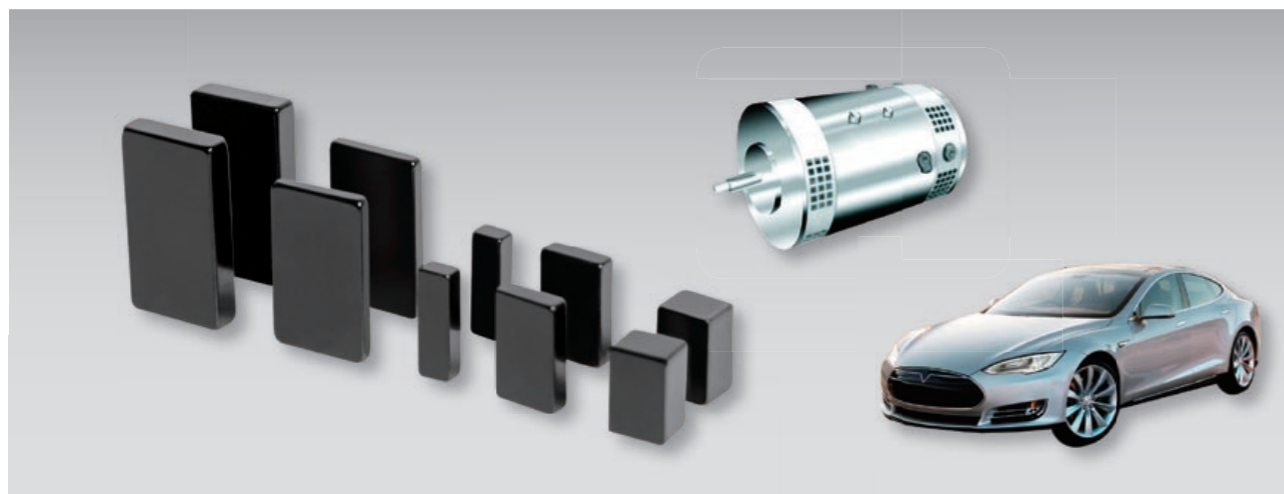
38SH粉料制D26×D18×20八极磁环与磁瓦拼圆性能对比

The Performance comparison of 8 poles 38SH magnet (D26×D18×20) designed by new and traditional design

项目 Item	①	②
表面磁通分布 Surface magnetic flux distribution	谐波 harmonic wave	梯形波 trapezoidal wave
磁极最大表磁 (Gs) Max magnetic intensity on pole	5400	4400
磁环 (瓦) 140°C×2h表面磁通损耗 (均值) Magnet ring (segment) 140°C×2h surface magnetic flux loss (average)	4.3%	6.6%
磁环 (瓦) 160°C×2h表面磁通损耗 (均值) Magnet ring (segment) 160°C×2h surface magnetic flux loss (average)	8.1%	13.1%



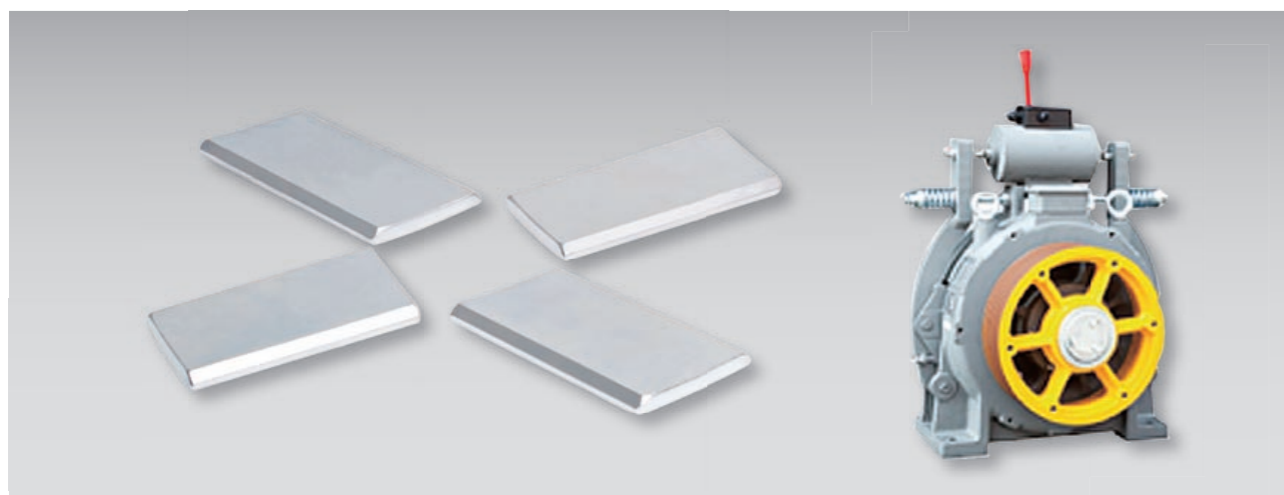
新能源汽车驱动电机 / Magnets Applications for Alternative Fuel Vehicles



新能源汽车驱动电机对钕铁硼磁钢有着较为苛刻的要求，以高耐温、耐腐蚀性为基础，高磁能积给予车辆爬坡提供动力保证。

High temperature resistance and corrosion resistance properties and the superior energy product (BHmax) of neodymium magnet which provides sufficient power to AFVs meet relatively strict performance requirements AFV motors.

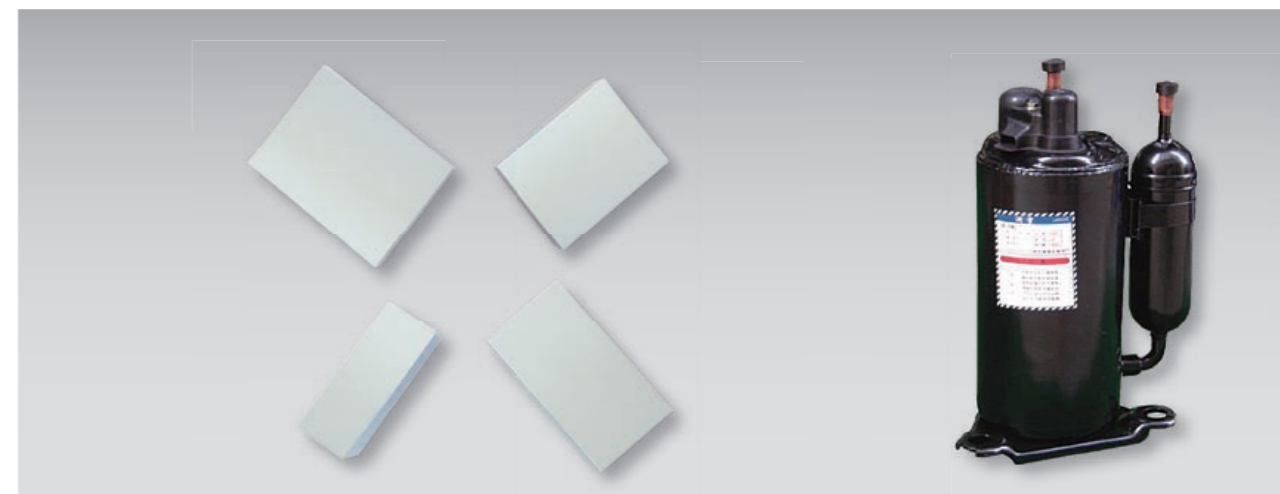
电梯曳引机 / Magnets for Elevator Tractor



钕铁硼磁体的性能大大影响着电梯运行的稳定性和安全性，中钢天源钕铁硼厂本着“质量第一、安全至上、以人为本”的目标，严格把关质量与品质，确保磁钢性能稳定。

The safety and stability of elevator is influenced by the performance of neodymium magnets. We always stand on our ideology, Quality First, Safety First and People-oriented, to assure quality and performance of our goods.

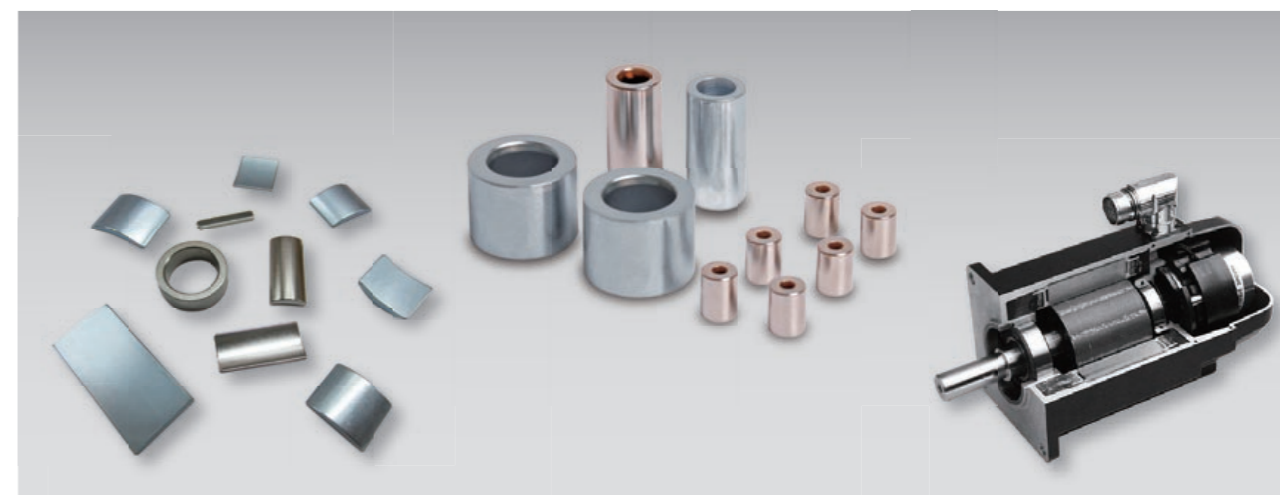
变频压缩机电机 / Magnets for Variable Frequency Compressor



本厂钕铁硼磁体具有优异的磁性能、较低的温度系数，高温不可逆退磁率低，以及在高、氟利昂和冷冻机油环境中的耐腐蚀性能强，可有效提高空调压缩机的工作效率和稳定性。

The neodymium magnets we offered has advantageous performance, including low temperature coefficient, irreversible demagnetization rate on high temperature, high corrosion resistance under high temperature environment fill with Freon and refrigerant oil. Besides, it could improve the efficiency and stability of air conditioner's compressor.

永磁伺服电机 / Magnets for Permanent Servo Motor



钕铁硼磁体因其优异的磁性能倍受客户好评。在伺服电机领域，本厂根据客户要求设计不同性能要求的钕铁硼磁体，磁场一致性好，耐温性能稳定。

Neodymium magnet is highly praised for its superiority in magnetic performance. SATT offers customized service to design and produce NdFeB magnet with high performance, consistence and temperature resistance to fit diversely customer requirements in the servo motor field.

产品牌号及性能

Standard Property of Neodymium Magnet

牌号 Grade	剩余磁感应强度 Br	磁感矫顽力 Hcb	内禀矫顽力 Hcj	最大磁能积 (BH)max	工作温度 T
	T	kA/m	kA/m	kJ/m ³	°C
	(kGs)	(kOe)	(kOe)	(MGOe)	
N35	1.17-1.22	≥868	≥955	263-287	≤80
	(11.7-12.2)	(≥10.9)	(≥12)	(33-36)	
N38	1.22-1.25	≥899	≥955	287-310	≤80
	(12.2-12.5)	(≥11.3)	(≥12)	(36-39)	
N40	1.25-1.28	≥907	≥955	302-326	≤80
	(12.5-12.8)	(≥11.4)	(≥12)	(38-41)	
N42	1.28-1.32	≥915	≥955	318-342	≤80
	(12.8-13.2)	(≥11.5)	(≥12)	(40-43)	
N45	1.32-1.38	≥923	≥955	342-366	≤80
	(13.2-13.8)	(≥11.6)	(≥12)	(43-46)	
N48	1.38-1.42	≥923	≥955	366-390	≤80
	(13.8-14.2)	(≥11.6)	(≥12)	(46-49)	
N50	1.40-1.45	≥796	≥876	382-406	≤60
	(14.0-14.5)	(≥10.0)	(≥11)	(48-51)	
N52	1.43-1.48	≥796	≥876	398-422	≤60
	(14.3-14.8)	(≥10.0)	(≥11)	(50-53)	
38M	1.22-1.25	≥899	≥1114	287-310	≤100
	(12.2-12.5)	(≥11.3)	(≥14)	(36-39)	
40M	1.25-1.28	≥923	≥1114	302-326	≤100
	(12.5-12.8)	(≥11.6)	(≥14)	(38-41)	
42M	1.28-1.32	≥955	≥1114	318-342	≤100
	(12.8-13.2)	(≥12.0)	(≥14)	(40-43)	
45M	1.32-1.38	≥995	≥1114	342-366	≤100
	(13.2-13.8)	(≥12.5)	(≥14)	(43-46)	
48M	1.36-1.43	≥1027	≥1114	366-390	≤100
	(13.6-14.3)	(≥12.9)	(≥14)	(46-49)	
50M	1.40-1.45	≥1033	≥1114	382-406	≤100
	(14.0-14.5)	(≥13.0)	(≥14)	(48-51)	
35H	1.17-1.22	≥868	≥1353	263-287	≤120
	(11.7-12.2)	(≥10.9)	(≥17)	(33-36)	
38H	1.22-1.25	≥899	≥1353	287-310	≤120
	(12.2-12.5)	(≥11.3)	(≥17)	(36-39)	
40H	1.25-1.28	≥923	≥1353	302-326	≤120
	(12.5-12.8)	(≥11.6)	(≥17)	(38-41)	
42H	1.28-1.32	≥955	≥1353	318-342	≤120
	(12.8-13.2)	(≥12.0)	(≥17)	(40-43)	
45H	1.32-1.36	≥963	≥1353	342-366	≤120
	(13.2-13.6)	(≥12.1)	(≥17)	(43-46)	
48H	1.37-1.43	≥995	≥1353	366-390	≤120
	(13.7-14.3)	(≥12.5)	(≥17)	(46-49)	

- 备注：① 以上磁性能参数和物理特性参数均是在室温下的数据。
 ② 密度在7.4~7.6g/cm³之间。
 ③ 可逆温度系数 α_{Br} -0.09%~-0.13%/°C α_{Hcj} -0.50%~-0.80%/°C。
 ④ SI与CGS单位制下磁性能的换算关系：1 T=10 kGs, 1 kOe = 79.6 kA/m, 1 MGOe =7.96 kJ/m³。
 ⑤ 以上使用温度是针对D10*10的标准圆柱，形状不同使用温度有所区别。

牌号 Grade	剩余磁感应强度 Br	磁感矫顽力 Hcb	内禀矫顽力 Hcj	最大磁能积 (BH)max	工作温度 T
	T	kA/m	kA/m	kJ/m ³	°C
	(kGs)	(kOe)	(kOe)	(MGOe)	
35SH	1.17-1.22	≥876	≥1592	263-287	≤150
	(11.7-12.2)	(≥11.0)	(≥20)	(33-36)	
38SH	1.22-1.25	≥907	≥1592	287-310	≤150
	(12.2-12.5)	(≥11.4)	(≥20)	(36-39)	
40SH	1.25-1.28	≥939	≥1592	302-326	≤150
	(12.5-12.8)	(≥11.8)	(≥20)	(38-41)	
42SH	1.28-1.32	≥987	≥1592	318-342	≤150
	(12.8-13.2)	(≥12.4)	(≥20)	(40-43)	
45SH	1.32-1.38	≥1003	≥1592	342-366	≤150
	(13.2-13.8)	(≥12.6)	(≥20)	(43-46)	
48SH	1.36-1.42	≥996	≥1592	366-390	≤150
	(13.6-14.2)	(≥12.5)	(≥20)	(46-49)	
28UH	1.02-1.08	≥764	≥1990	207-231	≤180
	(10.2-10.8)	(≥9.6)	(≥25)	(26-29)	
30UH	1.08-1.13	≥812	≥1990	223-247	≤180
	(10.8-11.3)	(≥10.2)	(≥25)	(28-31)	
33UH	1.13-1.17	≥852	≥1990	247-271	≤180
	(11.3-11.7)	(≥10.7)	(≥25)	(31-34)	
35UH	1.18-1.22	≥860	≥1990	263-287	≤180
	(11.8-12.2)	(≥10.8)	(≥25)	(33-36)	
38UH	1.22-1.25	≥876	≥1990	287-310	≤180
	(12.2-12.5)	(≥11.0)	(≥25)	(36-39)	
40UH	1.25-1.28	≥939	≥1990	302-326	≤180
	(12.5-12.8)	(≥11.8)	(≥25)	(38-41)	
42UH	1.28-1.32	≥987	≥1990	318-342	≤180
	(12.8-13.2)	(≥12.4)	(≥25)	(40-43)	
28EH	1.04-1.09	≥780	≥2388	207-231	≤200
	(10.4-10.9)	(≥9.8)	(≥30)	(26-29)	
30EH	1.08-1.13	≥812	≥2388	223-247	≤200
	(10.8-11.3)	(≥10.2)	(≥30)	(28-31)	
33EH	1.13-1.17	≥836	≥2388	247-271	≤200
	(11.3-11.7)	(≥10.5)	(≥30)	(31-34)	
35EH	1.17-1.22	≥876	≥2388	263-287	≤200
	(11.7-12.2)	(≥11.0)	(≥30)	(33-36)	
38EH	1.22-1.25	≥876	≥2388	287-310	≤200
	(12.2-12.5)	(≥11.0)	(≥30)	(36-39)	
40EH	1.25-1.28	≥939	≥2388	302-326	≤200
	(12.5-12.8)	(≥11.8)	(≥30)	(38-41)	
33AH	1.13-1.17	≥852	≥2786	247-271	≤220
	(11.3-11.7)	(≥10.7)	(≥35)	(31-34)	
35AH	1.17-1.22	≥860	≥2786	263-287	≤220
	(11.7-12.2)	(≥10.8)	(≥35)	(33-36)	

- Note: ① Above parameters are based on tests carried out under room temperature 23±5 °C, and test subjects are D10*10 standard cylinders. Be aware, parameters may change as shape of test subject changed.
 ② Additional parameters including the density which is 7.4-7.6g/cm³, the Reversible temperature coefficient of remanence which is -0.09%~-0.13%/°C and the temperature coefficient of coercivity which is -0.50%~-0.80%/°C.
 ③ Unit conversion : 1 T=10 kGs, 1 kOe = 79.6 kA/m, 1 MGOe =7.96 kJ/m³.

研发与检测能力 R&D Capacity

依托中钢天源“安徽省磁性材料工程中心”、“院士工作站”和“博士后工作站”等多个平台，多名博士、高级工程师领衔的研发团队，和从德国、荷兰进口的包括激光粒度仪、X荧光光谱仪和X射线衍射仪等在内的多种研发和检测设备，中钢天源钕铁硼厂始终致力于高性能烧结钕铁硼磁体的研发与生产。

SATT has been dedicated to the development and production of high performance sintered Neodymium magnet with support of the Magnetic Materials Engineering Center of Anhui Province, a Academician Workstation and a Postdoctoral Workstation set up in SATT, and a experienced R&D team consisting of a few PhDs and senior engineers, and a set of advanced research instruments, including Laser Particle Size Analyzer, X-Ray Fluorescence Spectrometer and X-Ray Diffractometer made by Germany and Holland.



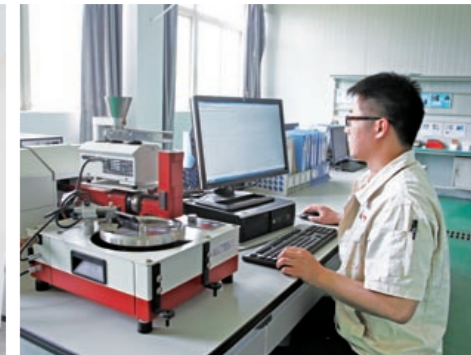
X荧光分析仪
X-Ray Fluorescence Spectrometer



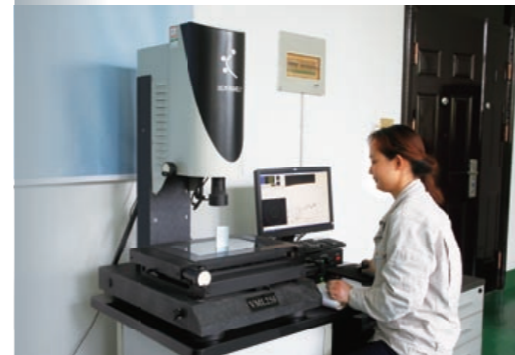
晶相分析显微镜
Crystalline Phase Microscope



碳硫分析仪
C-S Analyzer



激光粒度仪
Laser Particle Size Analyzer



影像轮廓仪
Projector



X射线衍射仪
X-Ray Diffractometer



磁性能测试仪
Magnetic Properties Meter



7项发明专利，20余项实用新型专利，20余项省级科学技术成果，承担多项国家级火炬计划项目和省部级重大科技攻关项目。

SATT owned 7 invention patents, over 20 utility model patents and more than 20 provincial/ministerial level scientific and technical achievements. Besides, we have undertaken a few state level Torch Programs and provincial or ministerial level science and technology key programs.





中钢天源电子材料科技产业园

致力磁业技术进步

Dedicated Magnetic Industry Technology Progress

中钢天源钕铁硼磁性材料厂

地址：中国·马鞍山市经济技术开发区红旗南路51号 (243000)

电话：0555-5200266 5200200

传真：0555-5200268

SINOSTEEL TIANYUAN NDFEB MAGNETIC MATERIAL PLANT

Address: No.51 Hongqi Nan Rd., Ma'anshan City, Anhui, 243000 P.R. China

Tel: (86-555) 520 0266 520 0200

Fax: (86-555) 520 0268

E-mail: ty@ty-magnet.com <http://www.ty-magnet.com>